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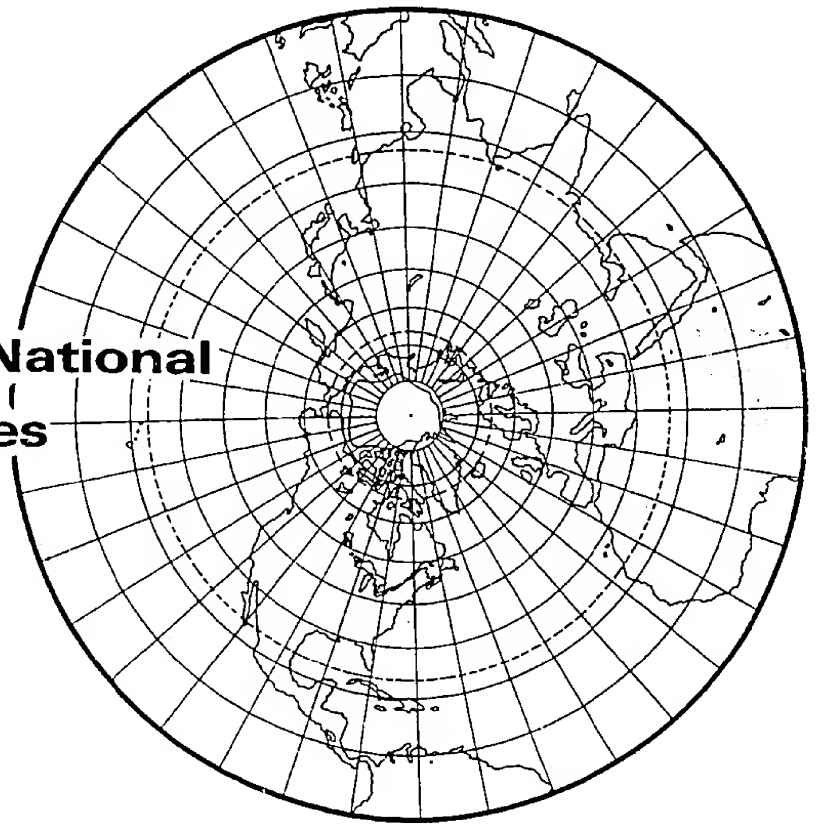
The Sino-Soviet Conflict: Its Implications for United States Strategic Planning in the 1970's (U)

Project TRIAD
Final Report, Volume II
BSR 2737
August 1970

Ann Arbor, Michigan

Sino-Soviet Interaction:
A Quantitative Assessment



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PREFACE

(U) This volume contains the results from the quantitative analyses conducted during the research effort. These analyses were aimed at describing the nature and dynamics of Soviet and Chinese relations from 1949 through 1967. A description of the data itself can be found in Volume VI of this report--"Sino-Soviet Interaction: A Quantitative Assessment--Data Codebook."

(U) The work on this volume spanned the period October 1968 through June 1970 and was carried out under the supervision of Mr. Franz J. Mogdis, Principal Investigator. The research itself was primarily conducted by Mrs. Karen Tidwell, Mr. Dennis Hall and Mr. Mogdis. Mrs. Tidwell participated in the development of the research design, the collection and coding of the data, and was primarily responsible for the preparation of the draft of the final report volume. Mr. Hall devised, supervised and helped to interpret the quantitative analyses performed in this research. Mr. Mogdis was primarily responsible for the development of the research design, assisted in the data collection and coding tasks, and had final responsibility for the review and critique of the volume. The valuable assistance and advice provided by Mr. Richard Cady, Bendix, and Dr. Rudolph J. Rummel and Dr. Warren Phillips of the University of Hawaii on the research design, analyses and interpretation are also gratefully acknowledged.

(U) The sources cited in this report indicated the extensive access to classified sources which was obtained via Headquarters, United States Air Force, Doctrine, Concepts and Objectives Directorate. The cooperation of the following offices is gratefully acknowledged in this respect:

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Bendix Aerospace Systems Division

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SECTION I

SUMMARY OF FINDINGS[1]

(U) This section summarizes the major findings derived from the quantitative analysis of Sino-Soviet relations for the period 1950-1967. In addition to the findings themselves, several hypotheses are also included. Where these occur, every effort has been made to make them as explicit and concise as possible. Both the findings and the hypotheses are offered with the hope that replication, criticism, and extension of our work will be undertaken by others.

(U) A comprehensive explanation of the procedures and results of the study itself can be found in Sections III through VI of this volume. Section VII concludes the volume with a comparison of the findings derived from this study with some of the prior research and hypotheses dealing with Sino-Soviet relations.

(U) The quantitative analysis consisted of three parts:

1. A delineation of the major patterns of change in Soviet and Chinese attributes from 1950 - 1967 and a measurement of primary shifts in their attribute differences over this period (Section IV).

2. A quantitative definition of the major patterns in Sino-Soviet interactions from 1950 - 1967 (Section V).

3. The relationship of shifts in Sino-Soviet interactions to changes in cultural, military and economic differences between them (Section VI).

(U) The major findings from each of these analyses are presented in the following paragraphs.

---

[1] Because this section is a summary of findings, the terms and variables mentioned will of necessity not be defined or explained. The reader should refer to the appropriate section of the report for an explanation of the particular analysis in question.

A. PATTERNS OF SOVIET AND CHINESE NATIONAL ATTRIBUTES AND THE DIFFERENCES BETWEEN THESE PATTERNS

1. Industrialization is the most significant dynamic attribute pattern for both the Soviets and Chinese. It occurs in each analysis as the first and strongest factor and is always characterized by growth and development over time.

2. Nuclear Transition appears as the second strongest pattern for the Soviets. It is characterized by diplomatic and conventional military behavior--for example, increasing numbers of bilateral treaties signed and rising fighter aircraft production--until 1960 when both proceed to fall off. Coupled with the decrease in Soviet conventional development after 1960 is an increase in their strategic development priorities as indexed by missile submarine and ICBM production and deployment.

3. In the analyses of the absolute differences between the Soviets and Chinese on each of the national attribute variables, several important patterns emerged. These patterns (factors) confirmed the existence of gaps between the two Communist powers in three areas: industrialization, nuclear capability, and in their perceptions[2] of the United States. The gaps in two of these areas--industrialization and nuclear capability have been steadily and rapidly increasing since 1957. On the other hand, the analyses identified that the gap between Moscow's and Peking's perceptions of the United States as indexed by the active and threat variables exhibit no consistent trend. Rather, its values exhibit considerable variance over time. This latter finding calls into question much of the traditional literature which assumes the gap has been a consistently increasing one.

---

[2] The use of the word perception should be clarified. As used throughout this study it refers to the articulated position of the Soviet Union and Communist China vis à vis the United States and vis à vis each other. That is to say that it represents the perceptions these two countries communicate via their state controlled press and radio to their masses and to the world as a whole. Because it is communication via a controlled media, it is possible in theory that at times the articulated perceptions may not represent the "real" or "probable" perceptions of the two countries. Such massive distortions of a general attitudional position, however, are highly unlikely over a long period of time; that is, it is perhaps possible to distort or mislead via media communications on a single issue or in response to a single event during a short time-period, but such distortions are not possible over a longer time-period, particularly when one is talking only about generalized, latent attitudes. Thus in fact, we are suggesting that as used in this study, articulated perceptions probably can also be equated to "real" perceptions, although we refrain from explicitly making this equation.

B. SINO-SOVIET PERCEPTIONS OF AND BEHAVIOR TOWARD EACH OTHER

1. The dominant factor derived from an analysis of the 45 variables used to measure direct interactions between China and the Soviet Union delineates a pattern of decreasing Soviet and Chinese cooperation and increasing Soviet and Chinese hostility. This pattern is indexed or best described by those Soviet and Chinese interactions which have been labelled by many as the major manifestations of the Sino-Soviet dispute, e.g., decreasing trade and increasing border incidents and negative perceptions of each other.

2. The analyses also confirmed that measures of Chinese trade dependency on the Soviet Union are negatively and highly related to measures of Soviet and Chinese hostility. This seems to confirm the hypothesis that as Chinese economic independence from the Soviet Union increased so did Sino-Soviet hostility.

3. A second pattern of Soviet-Chinese interaction also appeared. It describes a rise in cooperative Soviet-Chinese behavior until 1957, a transition period lasting until 1959, and then a trend which exhibits increasing hostile Soviet behavior toward Peking through 1967.

4. When Soviet perceptions of the Chinese (derived from content analysis) were combined with Soviet national attributes, a new pattern emerged. This new pattern evidenced a changing Soviet view of the Chinese as indexed by the weak, active, negative and threat variables. Moscow's perceptions of the Chinese were generally of a decreasing magnitude or intensity as measured by these variables until about 1957 when a transitional period lasting until 1960 occurs. In the post-1960 period a sharp upswing in magnitude is evidenced by all the variables. This factor might well be labelled the paper tiger syndrome. This pattern contradicts the hypothesis that as one nation perceives another nation as negative, he will also perceive that nation as stronger and more active--this being an interactive result of his negative feelings. The results of this study indicate that while the Soviets did perceive the Chinese as more negative and more active they did not at the same time perceive them as stronger but indeed perceived them as weaker.

5. A similar "paper tiger" pattern also appears in the analyses of the Chinese national attributes and perceptions of the Soviet Union. The Chinese simultaneously perceived the Soviets as negative, threatening and weak. An interesting divergence in the two patterns is that while 1959 marked the point at which the Chinese perceptions of the USSR increased in magnitude, the Soviets did not exhibit a similar pattern

toward China until 1960. This would seem to indicate that the Soviets, at least during this period of the dispute, were responding to increasingly negative Chinese verbal initiatives rather than initiating such behavior themselves.

6. A major area of divergence between the two Communist powers in their interactive behavior was noted. Chinese perceptions were found to be highly related to their physical behavior, while in the Soviet case such a relationship does not appear to exist. Chinese perceptions of the Soviets as threatening and negative correlated positively to increasing Chinese deployment of troops to the Sino-Soviet border. However, over the same period, the Soviet deployment of troops to the border was found to be independent of Moscow's changing perceptions of the Chinese as negative and threatening. When the Soviets initiated measures to strengthen their force levels along the border with China they concurrently reduced rather than increased the intensity of their verbal pronouncements about the Chinese. The Soviets thus appear to have consciously refrained from attacking the Chinese in public perhaps in hope that the problems causing the increased tension might be solved.

C. SINO-SOVIET PERCEPTION OF THE US

1. The difference between the Soviets and the Chinese in their perceptions of the United States was found to be related to certain patterns of Sino-Soviet interactions. A difference in their perception of the US on the active dimension related to a changing pattern of Soviet responses to China. The increase in the gap between their perceptions of the US as active is correlated with a decrease in Soviet cooperative behavior towards China and an increase in Soviet hostile actions.

2. The difference analysis and the 36 case analysis revealed that generally Soviet perceptions of the United States are independent of--that is, not related to--Chinese perceptions of the US across identical time frames. Furthermore the attribute analyses revealed that changing Soviet perceptions of the CPR (Chinese Peoples Republic) formed a pattern through the years quite unrelated to Soviet perceptions of the US. It should be noted that this finding contradicts an application of Newcomb's model of interactive behavior which when applied to the Sino-Soviet relationship would predict that the Soviet perception of China on the positive-negative dimension should be related--either positively or negatively--to their view of the United States. A reason for the lack of support for the Newcomb model may be due to the fact that we aggregated perceptual values annually over an 18-year period. We did not examine Soviet perceptions of the US and China at critical points in time and at

different levels of tension--e.g., during periods of détente as compared to periods of high crisis. This caveat notwithstanding, it is significant that at least within the generality of annual observations over 18 years there was little relationship between changes in Soviet and Chinese perceptions of each other and shifts in their perceptions of the US.

3. The differences in Sino-Soviet perceptions of the US as negative and threatening was found to relate to China's perception of the Soviet Union as strong. Here for the first time we have a difference in perceptions of the US relating to China's perception of the Soviet Union. It has often been suggested that the increasing differences in Soviet and Chinese perceptions of the US were a major element in escalating the Sino-Soviet dispute. The results of this study, however, do not seem to support this contention. The Soviet and Chinese difference in perception of the US as active is related to Soviet behavior vis-à-vis China but it is not associated with the major pattern of Sino-Soviet cooperation and hostility. The same is true of their difference in perceptions of the US as indexed by the negative and threat variables. These two perceptions of the US which one would most expect to relate to their increasing mutual hostility instead relate only to the Chinese perception of the Soviet Union as being strong.

An examination of the data from the content analysis indicates that Sino-Soviet perceptions of the US were equally shared on all dimensions except the negative-positive dimension. Here the Chinese consistently viewed the US as more negative than did the Soviets. This, of course, could be an idiosyncrasy of the Chinese to verbalize in this manner, but it is interesting to note that if this is the case, it occurs only on this dimension. However, even though the Chinese consistently viewed the US as more negative than the Soviets, shifts in this negative attitude were unrelated to the increasing Sino-Soviet hostility.

D. NATIONAL ATTRIBUTES AS PREDICTORS OF SINO-SOVIET INTERACTIONS

1. The differences between the Soviets and Chinese in the patterns of their national attributes from 1950 through 1967 predict with a high degree of accuracy their interaction patterns.

2. From 1950 through 1967, about 97 percent of the variation in Sino-Soviet cooperation and conflict is differences in their economic development; that is, the differences on the economic attributes were the best predictor variables to the pattern of Sino-Soviet cooperation and conflict. This should not be construed as an economic interpretation of the Sino-Soviet dispute but only as an observation that changes in the

gap between Soviet and Chinese industrial capability had a high relationship to changes in the hostility level between the two Communist powers. This finding supports the general belief held by many scholars that the Chinese were not only aware that they were having serious industrial problems, but that the perciptious withdrawal of Soviet aid and technicians in 1960 intensified the trend toward mutual hostility. The Chinese perceived the Soviets as a revisionist, status quo power more concerned with establishing a détente with the West than in helping the development of a fellow Communist country.

3. The strongest pattern of changing Sino-Soviet interaction--1950-1967--involved decreasing cooperation and increasing mutual threat perception and border hostility. This pattern is consistently related to changes in perceptions and economic and political-military differences between the two countries, with changes in economic differences being the most important. The pattern probably best describes that phenomenon which has become known as the Sino-Soviet dispute. It is made up of those interactions which indicate a steady trend of decreasing cooperation and increasing hostility. Soviet and Chinese interactions were highly dependent upon the six military national attributes. The Sino-Soviet gap in nuclear capability was highly related to the decrease in Soviet and Chinese cooperation and the increase in their hostility.

   The gap between the Soviets and Chinese in percentage of GNP allocated for defense is also highly related to the changing Soviet military and cultural responses to China. This pattern suggests a trend in which as the defense allocation gap widens, the Soviets decrease cooperative behavior and increase military measures.

E. "USEFULNESS OF TECHNIQUES" APPLIED IN STUDY FOR POLICY PLANNERS

The application of factor analysis, canonical regression, content analysis and other analytical techniques to Sino-Soviet interactions and differences, 1950-1967, is but one example of the wide range of policy relevant questions for which systematic and empirical findings can be found using these and other methods. With regard to our application of these techniques, we have found them efficient in untangling some of the complex relationships in the changing Sino-Soviet relationship and in clearly bringing out their patterns through the years. Moreover, and most important, within the confines of our data these techniques have precisely determined the relationship between changes in Sino-Soviet interactions, perceptions, and economic, and politico-military differences in a way meaningful to policy makers and for forecasting.

SECTION II

PRIOR RESEARCH

(U) Since the founding of the Chinese People's Republic (CPR) in 1950 the Soviet Union and China have participated in a dynamic relationship, the course of which has almost totally defied either the assumptions or predictions of US foreign policy decision-makers. This growing conflict between Moscow and Peking may well be the most important development in contemporary international relations. The dispute has resulted in world-wide competition between the Communist giants and has influenced almost every component of the international system.

(U) Although a great deal of conventional wisdom has been written and spoken about the conflict, most of it has been incomplete in both scope and analysis and at best has offered only a useful chronology of the major external manifestations of the dispute itself. More importantly, as the past has shown, these efforts have provided little guidance or insight to the military and policy planners who must prepare for and be prepared for any contingency. Our goal is to provide an analysis more directly relevant and responsive to the planners needs with the hope that by doing so additional guidance and insights will be given into present and future Sino-Soviet behavior.

(U) It is felt that in order to make the analysis more relevant--that is, to project patterns of Sino-Soviet relations into the future and to predict the outcome of such patterns--one must begin with an understanding of the situation at hand and that such an understanding must be based on a body of theory and a broad base of empirical data.

(U) This volume reports the results of a quantitative study of the Sino-Soviet dispute aimed at providing such an understanding. It is an examination of the dyadic relationship between Communist China and the Soviet Union from a systematic and quantitative perspective. Hopefully, we have identified indicators which account for changes over time in the relationship and which point to the possible range of future developments.

(U) There are many determinants and manifestations of a nation's behavior toward another nation. As noted by Robert North in a recent study,[3] whenever

[3]Robert C. North, The Chinese Communist Politburo and its Operational Code: A Feasibility Study, Palo Alto: Stanford University, 1967.

two individuals or interpersonal organizations--including nations--interact, they have a choice of behaving in a number of ways: they can interact verbally; their behavior can be essentially affirming or contradicting or damaging; they can negotiate, bargain, or try to coerce; they can compete in comparative advantage or essentially zero-sum terms; and they may act symmetrically or asymmetrically toward each other. In other words, there are many dimensions affecting the relations between two nations which may be examined and all or only part of these dimensions may be important in determining--and so also understanding--that nation's behavior.

(U) The literature existing on the various approaches one might use to measure and analyze interactions between nations is voluminous. It shows that one must be concerned not only with the direct interactions between such states but also with the peculiar and unique characteristics of the individual nations themselves.

(U) As previously stated, our primary objective in this research is to systematically examine Sino-Soviet relations across time with the hope of discovering patterns and determinants of their behavior. The various theories and hypothesis of, and approaches to, the study of inter-nation behavior and Sino-Soviet interactions in particular were examined in the light of their utility and their relevance to the achievement of this objective. (See Figure 1.)

(U) The survey of prior research indicated that at least three general types of measurable nation-state behavior should be included in the study if we hope to consider the major factors influencing Sino-Soviet relations. These three categories were (1) national development--that is, the national attributes or characteristics of the Soviet Union and Communist China; (2) direct Sino-Soviet interaction; (3) Soviet and Chinese perceptions of each other and of the United States. The following pages are organized into three sections, each representing a type of behavior as mentioned above, with categories one and two (attributes and interactions) included together in the first section. Each section will summarize the relevant prior research that supports its inclusion in the overall study.

A. NATIONAL ATTRIBUTES AND INTERACTIONS

(U) Our research design was shaped to a great extent by the work of Rudolph Rummel and his associates at the Dimensionality of Nations Project (DON), University of Hawaii. The research effort draws heavily both on his social field theory--his theoretical justification--and on the results of his research.[4]

[4] R. J. Rummel, The DON Project: A Five Year Research Program, Honolulu: The Dimensionality of Nations Project (DON), Department of Political Science, University of Hawaii, Research Report No. 9, March 1967.

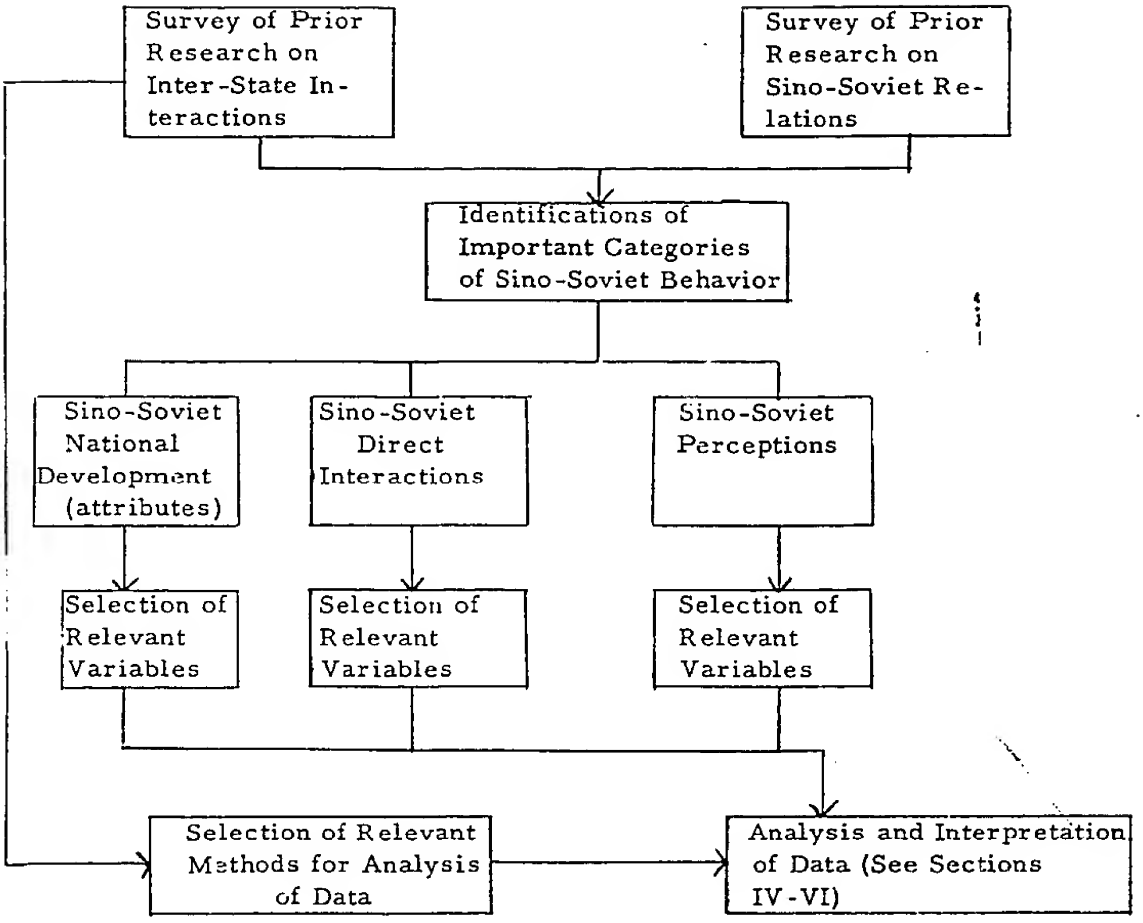

FIGURE 1

SCOPE AND METHODS OF ANALYSIS FOR TIME-SERIES STUDY OF SINO-SOVIET RELATIONS

Rummel himself draws to some extent from the works of Talcott Parsons[5] Kurt Lewin[6] and Quincy Wright.[7] Wright, for example, in his "theory" of war is specifically concerned with the attributes of nations and their influence on the behavior of other nations. Rummel's major contribution is that he has operationalized his theory and made it applicable to systematic social science research.

(U) The basic concept of Rummel's social field theory is that the differences between nations on their attributes are functionally related to their behavior towards each other.[8] These nation differences are conceived of as social distances that act like physical forces on behavior, affecting both their nature and magnitude of behavior.

(U) Rummel factor-analyzed 236 characteristics--that is, variables or measures of behavior--for 82 nations for the year, 1955. He found that nations vary in their national characteristics along seven major dimensions:[9] economic development, size, political orientation, population density, Catholic culture, foreign conflict behavior, and domestic conflict behavior.[10]

(U) These seven dimensions have little correlation with each other; that is, a nation's value on one dimension is largely independent or unrelated to its values on the other dimensions. Rummel also found that over half of the total variation of nations on their diverse characteristics can be described by these seven major dimensions.

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[5]Talcott Parsons and Edward Shils, eds., Toward a General Theory of Action, New York: Harper and Row, 1951.

[6]Kurt Lewin, Field Theory in Social Science, New York: Harper Torchbooks, 1964.

[7]Quincy Wright, The Study of International Relations, New York: Appleton, Century-Crafts, 1955.

[8]This summary of Rummel's social field theory is taken from R. J. Rummel, A Social Field Theory of Foreign Conflict Behavior, Honolulu: DON Reprint Series, No. 4, Department of Political Science, University of Hawaii, September 1967.

[9]A dimension is a cluster of highly intercorrelated characteristics (variables) which form orthogonal factors.

[10]See the following published materials by R. J. Rummel: "Some Attributes and Behavioral Patterns of Nations," Journal of Peace Research, no. 2, 1967, pp. 196-206; "Delineating International Patterns and Profiles," in Davis Bobrow, ed., The Computer and the Policy-Making Community, New York: Prentice-Hall, 1968; and "Indicators of Cross-National and International Patterns," American Political Science Review, LXII, no. 1, March 1969, pp. 127-147.

(U) Rummel was also concerned with the behavior of nations towards one another--that is, their dyadic relationships. He analyzed a sample 164 dyads and found that the behavior of nations toward each other varies along eight major dimensions: salience, emigration and communication, UN voting, exports, foreign students, international organizations, official conflict behavior and diplomatic representation. [11]

(U) The theory is elaborated mathematically, drawing upon the theorems of n-dimensional spaces and linear algebra. These function to link Phases I (attributes) and II (dyadic behavior) of DON together so that the research results and design have continuity that they would otherwise lack. Simply put, the theory states that nations are social units interacting in a social field (in some ways analogous to an electromagnetic field), and that this field can be analytically divided into two spaces, a space of behavior and a space of attributes.

Within the attribute space nations are located in terms of their characteristics; within the behavior space, dyads (such as US→USSR) are located in terms of their behavior. Now, a distance vector between nations in attribute space can be measured and this vector can be treated as a force acting on the origin of behavior space. In other words, the location of dyads in behavior space can be treated as a function (resolution) of the distances (forces) between nations on their attributes. Mathematically,

$$W_{A \to B} = \sum_{j=1}^{p} \alpha_j d_j, \quad A\text{-}B,$$

where $W_{A \to B}$ = location (as a vector) of dyad A→B in behavior space,

d_j = distance vector between nations A and B on attribute dimension j of an attribute space of p dimensions.

α_j = a parameter for dimension j.

(U) Leaving mathematical considerations aside, the field theory says simply that nations will behave towards each other in terms of their socio-economic, cultural, geographic, and political differences and similarities. Tests of the theory thus far have been encouraging. In particular, one analysis of the linkage of behavior between nations to their differences carried out at Hawaii showed different levels

[11] See Rummel, "Indicators of Cross-National and International Patterns," op. cit., and "Common Dimensions of International Behavior and Attribute Spaces," DON Chart No. 1, 1966.

of economic development to be an especially important force influencing both the direction and the magnitude of behavior.

(U) Rummel's position thus strongly suggested the need to examine both the national attributes and interactions of a dyadic relationship. This we did as we examined the relationship between the Soviet Union and China. In our analysis of the attributes, moreover, we also chose to follow Rummel's method of measuring the differences between the Soviets and Chinese on their attributes and comparing these differences to their interactions. Decisions then had to be made on what attributes and interactions were important and would best describe the fluctuations and patterns in Sino-Soviet relations across time.

(U) Because the number of national attributes and behaviors of a nation is large, a selection process was undertaken to choose the most relevant indicators. Much of the qualitative and quantitative literature concerned with the international behavior and development of nations and with the Sino-Soviet conflict itself was surveyed for suggestions.

(U) Rummel's work, was again a major factor, this time in the selection of the indicators to be used. His research has identified several dimensions of national characteristics (attributes) and behavior (interaction) and the indexing variables for each of these dimensions;[12] i. e., those variables which most closely correlated or corresponded to the dimension itself. In factor analysis terms, the measure would be among those characteristics correlating most highly with the factor-dimension. This work was used as a starting point in our variable selection process.

(U) There also have been many efforts specifically concerned with identifying the important elements in the Sino-Soviet dispute. This research has been concerned largely with such divisive elements as ideological issues, foreign policy issues, national interest issues, and stages of growth.[13] The greatest difficulty, however,

[12] See R. J. Rummel, "Some Empirical Findings on Nations and Their Behavior," World Politics, Vol. XXI, no. 2, January 1969, pp. 230 and 236 and "Indicators of Cross-National and International Patterns," op. cit.

[13] Zbigniew Brzezinski, The Soviet Bloc: Unity and Conflict, Cambridge: MIT Press, 1967.

is in operationalizing these issues. The 20th Communist Party Congress in 1956, for example, has been mentioned by many scholars as a turning point in Sino-Soviet relations.[14] It was here that Khrushchev advanced his theoretical premises on peaceful coexistence, the noninevitability of war and the peaceful transition to socialism. The impact of these pronouncements and the resultant bitter polemics which developed over them are often cited as one of the major causes of the dispute. Yet factors such as these are difficult to make concrete and measurable. While considering these and similar issues, e.g., the struggle for supremacy in the world communist movement, as important, our immediate concern rested more with explicit and operational hypotheses offered about the Sino-Soviet dispute.[15] The most useful of the latter are summarized in the following paragraphs.

(U) In his article, "A National Interest Analysis of Sino-Soviet Relations,"[16] Thomas Robinson discusses Hans Morgenthau's conception of national interest and its relationship to power in the context of Sino-Soviet relations during the period 1949 to 1963. Robinson examines: (1) the national interests of the Soviet Union and Communist China during this period and attempts to identify the changes which occurred within the course of Soviet-Chinese relations during the same time frame; (2) whether Morgenthau's hypothesized relationship between power and interest is borne out in the case under consideration; (3) the Sino-Soviet alliance in terms of each country's respective "national interests"; and (4) the impact of nuclear weapons on Soviet and Chinese national interests.

[14]See, for example, Harold Hinton, Communist China in World Politics, Boston: Houghton-Mifflin Co., 1966, pp. 129-130; Donald Zagoria, The Sino-Soviet Conflict, 1956-61, New York: Atheneum, 1964, p. 7; William Griffith, The Sino-Soviet Rift, Cambridge Mass,: MIT Press, 1964, p. 16; and David Floyd, Mao Against Khrushchev, New York: Praeger, 1963, pp. 32-45.

[15]Because these verbal theories are difficult to test, an alternative strategy was adopted. If the quantitative analysis validly tapped attributes, perceptions, and behavior, then the verbal theories would "emerge" from the data.

[16]Thomas Robinson, "A National Interest Analysis of Sino-Soviet Relations," International Studies Quarterly, Volume XI, no. 2, June 1967.

(U) Clearly, Robinson views the element of "power" as an important factor in Soviet-Chinese interactions. He points out that

> ...the most singular change in Sino-Soviet relations has been a relative increase in Chinese power. This rose from a point of almost complete dependence on Soviet Russia in 1950 (symbolized by the introduction into the Chinese body politic of the favorite Soviet control device of 'joint stock companies') to a point in 1964 of competition for power on fairly equal terms within the Communist bloc and throughout the world (signified on the one hand by the Chinese declaration of ideological independence in the 1960 tract "Long Live Leninism," and, on the other hand, by the Chinese nuclear explosion late in 1964). Although Soviet power also increased during the period and in absolute terms is probably much greater than Chinese power, it is the relative increase that matters.[17]

Robinson--like most commentators on international relations--is ambiguous in his use of the word "power." It is not clear in his discussion just exactly what is meant by this concept. Indeed, at least two definitions can be derived from his discussion. The first implies that "power" is the degree of Chinese "independence" of the Soviet Union. The second equates "power" to nuclear and/or industrial capability. However "power" is defined, Robinson asserts that the Chinese have experienced a relative increase in it over time and that this has had a profound effect on Sino-Soviet relations.

(U) In order to test empirically the Robinson conjecture that the changing relative power of the Soviet Union and Communist China had a profound effect on Sino-Soviet relations, we developed measures of Soviet and Chinese "power." Because of the ambiguities in the operationalization of "power" mentioned above, measures for both definitions were included. Variables measuring the industrial and nuclear capabilities of the Soviets and Chinese were included in the national attribute study. Variables measuring the relative dependence of the Chinese on the Soviets were included in the interaction study.

(U) Robinson also states that nuclear weapons are a discordant issue between the Soviet Union and China. He bases this on Morgenthau's theory on the nature of changes in alliances in the nuclear age and on the situation existing between the

[17] Ibid.

Soviets and Chinese. Robinson states "...the mechanics of the Sino-Soviet alliance and the presence of nuclear weapons in the hands of the Soviet Union and the United States, if not also China, tend to push the two allies apart."[18] Geoffrey Hudson also assigns great significance to the uneven development of nuclear weapons. He states that "it is impossible to estimate exactly what weight should be given to each of the various factors which have contributed to the conflict between the Communist regimes of Russia and of China, but there can be no doubt that Russia's refusal to assist China to become a nuclear power was one of the most important."[19]

(U) Considering the importance credited to nuclear weapons and their effect on Sino-Soviet relations, variables measuring the strategic nuclear capabilities of the two powers were included in the study.

(U) George Kennan, on the other hand, has stated that one of the major forces causing the split between the Soviets and the Chinese Communists has been their demands on each other.[20] Kennan believes the demands made by the Chinese on Moscow were primarily economic and military. The Chinese economy was in great difficulty and needed a tremendous infusion of foreign capital which they naturally hoped would come in the form of direct gifts from the Soviet Union. The Chinese also wanted greater Soviet military support than Moscow seemed willing to give. Because of Kennan's emphasis on Soviet economic and military aid to China, measures of Soviet aid are also incorporated in the study.

(U) The issue of territorial claims has been another factor mentioned by many as an element contributing to the deterioration of Sino-Soviet relations.[21] The Chinese have territorial claims arising out of old treaty settlements with the Russian Tsarist regimes. Although these claims have existed for many years, only recently have

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[18] Ibid.

[19] Geoffrey Hudson, "Paper Tigers and Nuclear Teeth," The China Quarterly, No. 39, July-September 1969, p. 64.

[20] George Kennan's testimony as reported in Sino-Soviet Conflict, the United States Congress, House of Representatives, Committee on Foreign Affairs, 89th Congress, 1st Session, House Document No. 237, May 14, 1965, p. 67.

[21] Zbiginiew Brzezinski's testimony in ibid., p. 3R.

they been pushed by the Chinese. Soviet and Chinese responses to increasing border tensions, caused at least in part by these renewed territorial claims have resulted in the concentration of troops along the Sinkiang frontier. The variable used as an indirect measure of these increasing tensions was the number of military units deployed by the Soviets and by the Chinese in the border area by year. It may be argued however, that this measure is probably a better indicator of Soviet and Chinese hostile behavior than it is of their concern with territorial claims.

B. PERCEPTIONS AND CONTENT ANALYSIS

(U) Besides examining the physical dimensions existing within and between nations, many scholars have stressed the importance of their verbal and written communication. In fact, many believe that the perceptions of a nation may be more important than a host of other variables--including national and dyadic attributes--in influencing their behavior. "In the last analysis--the perceptual orientation of a nation's leadership may well be the most significant determinant of a state's actions."[22] Perception, in this case, being defined as the process of becoming cognizant of, and evaluating, an environment. It refers to the cognitive, evaluative and affective awareness of various inputs from the external environment.[23] Explicitly, many scholars have gone so far as to state that the difference between Soviet and Chinese perceptions of the US is one of the key factors in determining the direction and intensity the Sino-Soviet dispute has taken.[24]

(U) If we accept the importance of perceptions in analyzing interactive phenomena, the case of the Sino-Soviet relationship poses many problems. Clearly, many standard methods of social science research--the personal interview, the questionnaire or the participant observer of decision-makers in action--to measure such perceptions or attitudes can rarely be used.[25] An instrument for measuring perceptions at a

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[22]Nazli Choucri, "The Perceptual Base of Nonalignment," The Journal of Conflict Resolution, Volume XIII, No. 1, March 1969, p. 57.

[23]David Krech and Richard Crutchfield, "Perceiving the World" in Wilder Schramm, ed., The Process and Effect of Mass Communication, Urbana: University of Illinois Press, 1965.

[24]See for example, P. Terrance Hopmann, "International Conflict and Cohesion in International Political Coalitions: NATO and the Communist System During the Postwar Years," Ph.D. dissertation, Stanford, May 1969; Brzezinski, "The Sino-Soviet Conflict," op. cit., pp. 397-411; and Hinton, China in World Politics, op. cit., p 491.

[25]Ole Holsti, "External Conflict and Internal Consensus: The Sino-Soviet Case," in Philip J. Stone, Dexter Dunphy, Marshall Smith and Daniel Ogilive, eds., The General Inquirer: A Computer Approach to Content Analysis, Cambridge: MIT Press, 1966.

distance is thus needed. For this purpose many have turned to content analysis in an effort to derive the approximate attitudinal consensus held by actors toward each other at specified time intervals. Content analysis has been defined jointly by Holsti and Stone as "any research technique for making inferences by systematically and objectively identifying specified characteristics of messages."[26]

(U) Holsti has demonstrated the utility of content analysis in the study of problems in international relations.[27] He examined the hypothesis that "a high level of inter-coalition conflict tends to increase intracoalition unity and more relaxed relations between blocs tend to magnify differences within the alliance" in the context of Sino-Soviet relations.[28] Holsti operationalized this hypothesis on the basis of research done by social psychologists in the area of cognitive balance. His hypothesis is restated as follows: "Chinese and Soviet attitudes toward the US will tend to be similar in periods of high interbloc conflict, whereas during periods of decreasing tensions, attitudes toward American policy will diverge." The major underlying theoretical assumption is that consensus can be defined as the "existence on the part

[26]Ole Holsti and Joanne Loomba, "Content Analysis," in Gardner Lindzey and Elliot Aronson, eds., The Handbook of Social Psychology, Reading, Mass.: Addison Wesley, 1968, p. 601; and Stone, et.al., The General Inquirer, op. cit., p. 5.

[27]Holsti, The General Inquirer, op. cit.

[28]Holsti, ibid. Zbigniew Brzezinski, on the other hand, believes that quite the opposite is true of the Sino-Soviet alliance. He states that the Sino-Soviet rift has a tendency to widen as a result of international crises. "The Quemoy-Matsu crisis of 1958, the U-2 crisis of 1960, the Cuban confrontation of 1962, and the American bombing of North Vietnam in 1965, all were followed by intensified polemics, mutual accusations and by accentuated suspicions concerning each other's motives and good faith. This sequence of events seemed to suggest that conditions of stress tended to drive further apart the Chinese and Soviet national interests and ideological assessments; while in a setting in which either or both could pursue their goals without endangering or negatively affecting each other's interest, the latent Communist interest in preventing a total split tended to be reawakened." (emphasis added) Zbigniew Brzezinski, op. cit., p. 429.

of two or more persons of similar orientations toward something." This assumption is supported by the literature dealing with cognitive balance, and especially the work done by Theodore Newcomb and Fritz Heider.[29] Newcomb's A-B-X model is a simple model of interpersonal communication which is used as the basis for the measurement of cohesion.[30]

(U) This model is composed of two actors, A and B, who are interdependent and hence who have simultaneous orientations toward an external object X. Furthermore, the three parts of this model are interrelated in a system which is characterized by a balance of forces. Therefore, there are always present "strains" toward preferred states of equilibrium.[31] Based on this postulate, the model assumes that the co-orientation or consensus between A and B can be measured on the basis of the similarity of their perceptions of X.

(U) The fact that A and B are interdependent means that they may have simultaneous orientations toward X. By orientations we refer to attitudes in both their affective and cognitive senses. There are thus four possible joint orientations by A and B toward X. The key relationship from the point of view of cohesion is the symmetrical one in which A and B have similar orientations toward X.

(U) Bonds which connect the three points of the A-B-X triangle may carry a charge, either positive or negative. Balance among the three points is achieved only when the number of negative points connecting them is even or zero. Hence if both A and B have a symmetrical orientation--either positive or negative--toward X, then for the system to be in balance, the relationship between A and B tends to be positive; if their orientations differ--that is, if one has a positive attitude and the other is negative--their relationship tends to be negative. These four possible balanced configurations are shown in Figure 2.

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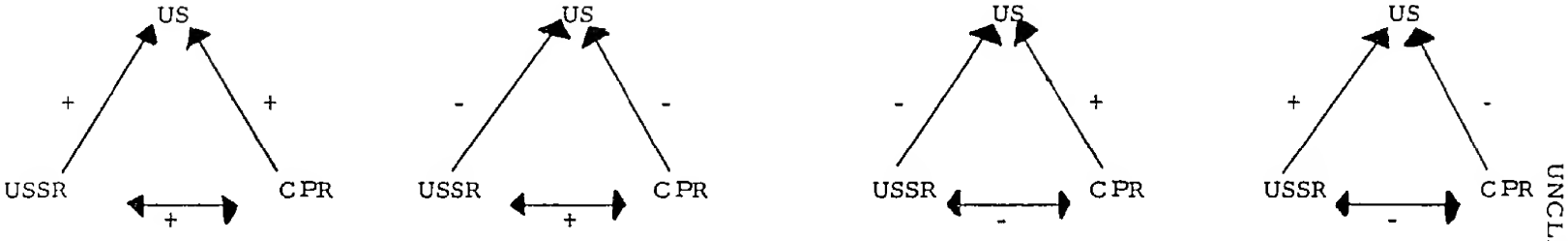
[29]See T. M. Newcomb, "Communication Behavior," in Roland Young, ed., Approaches to the Study of Politics, Evanston: Northwestern University Press, 1958; T. M. Newcomb, "An Approach to the Study of Communicative Acts," in A. P. Hare, et.al., eds, Small Groups, New York: Alfred Knopf, 1955; Fritz Heider, "Attitudes and Cognitive Organizations," The Journal of Psychology, Vol. XXI, 1946, pp. 107-112, and by the same author, The Psychology of International Relations, New York: John Wiley, 1958.

[30]Holsti, op. cit., and Hopmann, op. cit.

[31]Hopmann, op. cit., p. 152.



POSITIVE CONFIGURATION

NEGATIVE CONFIGURATION

THE MODEL SUGGESTS THAT THE RELATIONS BETWEEN TWO ACTORS (USSR, CPR) MAY BE TREATED IN TERMS OF THEIR CO-ORIENTATION TOWARD A COMMON EXTERNALLY SALIENT OBJECT (US).

FIGURE 2

MODIFIED NEWCOMB MODEL - POSITIVE AND NEGATIVE CONFIGURATION

(U) In summary, the A-B-X model suggests that the relations between two actors--or more than two actors when treated in graph-theoretical terms as the relations within multiple dyads or semi-cycles--may be treated in terms of their co-orientation or consensus toward a common external object. This triangular--or multiple triangular--relationship may be characterized by a strain toward balance in which either two or no relations are negative if three conditions are also met: (1) the members of the dyad must be highly salient to one another; (2) the object of reference must be important to both; and (3) the object must have joint relevance to both. If these three conditions are met, and balance may be assumed to exist, then the A-B-X model suggests that similar evaluations by A and B of the same object X tend to produce a positive relationship between A and B, and dissimilar evaluations of X produce a negative relationship between A and B.

(U) In Holsti's study, he chose the United States as the attitude object (X) for the Soviet Union and China as A and B. Certainly the US is an object of importance and relevance to both nations and both nations are highly salient to one another. Eighty-two documents written by leading Chinese and Soviet decision-makers at seven points in time during the years 1950-1965 were content analyzed using the Stanford version of the "General Inquirer." The results indicated that during the peak period of the crises over Korea, Cuba, and Vietnam, both Chinese and Soviet perceptions of American policy were at the extremes of the negative, strong and active ends of the evaluative, potency, and activity dimensions. During the three periods of lower East-West tension, however, differences between Chinese and Soviet perceptions of the US increased on all three dimensions.

(U) The inclusion of perceptual variables derived from content analysis in this study allows us to further test the importance of perceptions in interstate relations; and, in particular, it will allow us to identify the relationship of changing Soviet and Chinese perceptions of the US to changes in their direct interaction patterns. That is, are Soviet and Chinese perceptions of each other and of the United States important factors in understanding the dynamics of the Sino-Soviet dispute?

(U) The concept of cognitive dimensions was mentioned earlier in the discussion of Holsti's work. This reference refers to the way the material selected for content analysis is evaluated. That is, what type of dictionary is used to reduce the written or spoken material to meaningful quantitative categories or dimensions of cognition. The dictionary used both in the Holsti study and in this study was primarily derived from the work of Charles Osgood. Osgood's research led him to try and determine empirically those dimensions which seemed to be the most basic to human cognition in many cultures.[32] A series of 50 bipolar scales were factor

[32] Charles Osgood, George Suci and Percy Tannenbaum, The Measurement of Meaning, Urbana: The University of Illinois Press, 1959.

analyzed, and those scales which tended to cluster together were extracted and identified to be the primary dimensions underlying the cognitive structure. The result was as follows:

> In every instance in which a widely varied sample of concepts had been used, or the concept variable eliminated as a forced-choice among the scales, the same three factors have emerged in roughly the same order of magnitude. A pervasive evaluative factor in human judgment regularly appears first and accounts for approximately half to three-quarters of the extractable variance. Thus the attitudinal variable in human thinking..., based as it is on the bedrock of rewards and punishments, appears to be primary... The second dimension of the semantic space to appear is usually the potency factor and this typically accounts for about half as much variance as the first factor--this is concerned with power and the things associated with it, size, weight, toughness, and the like. The third dimension, usually about equal to or a little smaller in magnitude than the second, is the activity factor--concerned with quickness, excitement, warmth, agitation, and the like. And when other factors can be extracted and identified they typically, again, account for no more than half the amount of variance attributable to the second and third factors.[33]

(U) The identification of these three basic dimensions of human communication--the evaluative, the potency and the activity dimension--was then used as the basis for the construction of a dictionary to be used to evaluate written or spoken messages in terms of these three dimensions.

(U) The first step in any dictionary construction is to determine the dimensions into which the dictionary items will be coded. The content analysis program itself is capable of accommodating any set of dichotomous dimensions. This project, as noted earlier, employed the dimensions of Osgood's semantic differential. Therefore, all words in the dictionary are coded on a seven-point scale from +3 to -3 on all three of Osgood's dimensions; of course, many words in the dictionary are considered to be neutral with respect to one or more of these dimensions and are thus scored zero.

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[33] Charles Osgood, George Suci and Percy Tannenbaum, The Measurement of Meaning, Urbana: The University of Illinois Press, 1959, pp. 72-73.

> The dictionary thus reflects the assumption that when decision-makers perceive themselves, other nations, events--or any stimulus--the most relevant discriminations are made in a space defined by these three factors.[34]

(U) Once the dimensions for the dictionary were selected, it was necessary to select word entries for the dictionary. The original selection process was carried out at Stanford by Robert North, Richard Brody and Ole Holsti and consisted of the 3,000 most frequently used words in the English language plus the addition of words frequently used in political documents. This resulted in a dictionary of 3521 words. After running several documents dealing with the nine members of the Communist system,[35] leftover lists consisting of words in the text which were not picked up by the dictionary were examined. All major leftover words, other than prepositions, articles and conjunctives, were tagged and added to the dictionary. These totaled 434 new words, bringing the dictionary size up to 4,062. An additional 440 words were added from the leftover lists of this project, bringing the final dictionary size up to 4,502 words.[36]

(U) One of the major problems with dictionary construction is that the word entries are tagged in isolation and out of context. This problem may be at times severe because words which appear most frequently in text are often those words which have the most varied meanings. Some problems resulting from words having multiple meanings in different contexts are extremely difficult to solve, and we have had to assume that errors caused by analyzing text with a dictionary based on isolated words out of context are random and, hence, tend to cancel one another out.

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[34] Ole Holsti, "An Adaptation of the 'General Inquirer' for the Systematic Analysis of Political Documents," Behavioral Science, No. 9, 1964, p. 383.

[35] P. Terry Hoppmann, "Internal Conflict and Cohesion in the Communist System," International Studies Quarterly, Vol. 11, No. 3, September 1967.

[36] It should be noted that the content analysis program itself automatically chops the endings of all words. Thus the figure 4,502 words means 4,502 root or basic words. Thus while "war," for example, is counted as only one entry in the dictionary, the dictionary will pick up all of its derivatives--e.g., wars, warring, warred.

(U) All of the words in the dictionary were tagged on three dimensions by three judges working independently. For the original dictionary these scores were averaged and then distributed in a 30%-40%-30% distribution across the three degrees of intensity in each direction according to their average distance from zero. For the words added later, the rounded averages were used as the final taggings for each. Inter-coder reliability scores have generally been high; for the most recent set totaling 440 words reliability scores across three judges were:

Dimension	Between Judges			Composite
	1 and 2	1 and 3	2 and 3	
Evaluative	.76	.75	.79	.91
Potency	.60	.53	.63	.81
Activity	.49	.47	.70	.78

(U) A score for a pair of judges of .70 or better or a composite of .85 is generally considered to be very good.

(U) The above procedure means that discrepancies between coders are minimized, so that the errors caused by the idiosyncrasies of one individual coder cannot have too great of an effect on the results. It does not account for another source of error, however, namely cultural bias. It is doubtful that such assignments of weights always accurately reflect the intensity attached to certain individuals in Communist China and the Soviet Union, for example. Although this would be a serious problem if we were attempting to assign absolute values to the attitudes of any country, it is not a major problem with comparative studies over time as any distortion in the dictionary would generally remain unchanged from one document to the next. This makes the dictionary a reliable instrument for time series analysis because any systematic error will at least be consistent.

(U) A further problem is that computer content analysis requires that all documents be rendered into English inasmuch as the dictionary for the content analysis program is in English. This means that some distortion can enter into the analysis from translation. This problem, hopefully, is minimized in the case of the Soviet Union and Communist China by taking all translated documents from one source (when possible) and by using the Soviets or Chinese own English translations whenever that was possible. Because we are primarily interested in making comparisons using several documents rather than in obtaining absolute values for any single document, this procedure should minimize the extent to which differences among individual documents could cause great distortion to the translations used. Again we assume that any remaining source of translation error is random, and that, over the entire set of documents, individual errors will tend to cancel one another out.

(U) Another problem to be aware of is that of cultural variance in communication behavior. That is, do the Chinese and the Russians verbalize in the same manner? Does, for example, the word "hate" when used by both the Soviets and the Chinese have the same meaning? This, unfortunately, is an area in which little research has been done to guide us. That which has been done, however, would suggest that Osgood's three dimensions of human communication are valid across cultures.[37]

[37] A recent study in this area, for example, noted that, "It seems fair to conclude that some marginal aspects of perception have been shown to differ in a manner which relates them to cultural contexts. But "culture" in the abstract cannot be considered as a sui generia determinant of these differences." Henri Tajfel, "Social and Cultural Factors in Perception," in Gardner Lindzey and Elliot Aronson, eds., The Handbook of Social Psychology, Vol. III, Reading, Mass: Addision Wesley, 1969, p. 379.

SECTION III

INTRODUCTION TO DATA ARRAYS AND METHODS OF ANALYSIS

A. DATA ARRAYS

(U) The research goals outlined in the preceding section dictated the nature of the data collected on Soviet and Chinese relations. These data basically were divisible into two sets: (1) measures of Soviet and Chinese national attributes; and (2) measures of direct Sino-Soviet interactions.

(U) In order to describe Soviet and Chinese internal development, data were collected on 17 of their national attributes. These measures include economic, military, political and demographic variables. The data were collected annually for the years 1950-1967. (See Volume VI, Data Codebook for a complete listing of all variables, definitions, scalings and sources used in study).

(U) In order to examine direct Sino-Soviet relations, data were collected on 31 Sino-Soviet interactions. These measures include aid and assistance, treaties, exchanges of personnel, trade and border activity. Again the data were collected annually for the years 1950-1967.

(U) In addition to the variables already mentioned, several perception variables[38] derived from the content analysis of Soviet and Chinese statements are included in the attribute and interaction matrices (See Table 1). Seven variables measuring changing Soviet perceptions of the United States are included with the 17 Soviet national attributes and seven variables measuring Chinese perceptions of the United States are added to the 17 Chinese national attributes, a total, therefore, of 24 Soviet attributes and 24 Chinese attributes. Seven variables measuring Soviet perceptions of China and seven variables measuring Chinese perceptions of the Soviet Union are added to the 31 Sino-Soviet interaction variables, thus bringing the number of variables in this set to a total of 45.

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[38] The primary source for the statements used in the content analysis were Jen-min Jih-pao (Peoples Daily) and Hung-chi (Red Flag) for the Chinese and Pravda and Izvestia for the Soviets. All statements considered for inclusion were made by the President, Party Chairman, Defense Minister or Foreign Minister of the Soviet Union or China or were official government notes of these two countries. The assumption being made here of course is that to a very great degree these officials define and articulate official policy and thus their statements represent each government's official position as it is being articulated to the rest of the world and to the masses within their own country. In addition to the above criteria, each statement to be considered for inclusion also had to be primarily concerned with Soviet or Chinese relations with the other or with the U.S. From the total set of statements which met the above criteria, six to eleven articles were sampled yearly (circa 10000 words) for both the Soviet Union and China toward each other and toward the U.S. with no more than two articles being selected from any one month within a given year. As Choucri has previously noted, however, and it also holds true for this study, the nature of the sample presents something of a problem in terms of the use of statistical tests. Strictly speaking, these statements have not been drawn at random. The population has been initially restricted, yet there is no reason to suspect that it is not normally distributed. A very severe problem would have arisen in terms of theoretical orientation and research procedures if we had adhered strictly to more conventional practice and introduced complete randomness in our sampling. References to issues and countries other than those of concern would have loaded our sample with non-relevant data. The cost of coding and processing such data would have far outweighed its minimal contribution. Hence, it was considered necessary to direct our sampling and focus only on those statements which fit our definition. Basically, then, we argue that the use of parametric tests are justifiable given the nature of the data. Yet in view of the unorthodox procedure the results of our statistical analyses should be interpreted with caution. (Choucri, Conflict Resolution, op. cit., p. 62).

TABLE 1

PERCEPTUAL (CONTENT) VARIABLES

SOVIET, CHINESE PERCEPTIONS OF THE U.S. AS:

Dimension	Variable	
Potency	Strong	
	Weak	
Activity	Active	Threat Index (Strong x Active x Negative = Threat Index)*
	Passive	
Evaluative	Positive	
	Negative	

SOVIET, CHINESE PERCEPTIONS OF EACH OTHER AS:

Potency	Strong	
	Weak	
Activity	Active	Threat Index (Strong x Active x Negative = Threat Index)*
	Passive	
Evaluative	Positive	
	Negative	

* The underlying assumption in the threat index is that threat is a combination of A's perception of B's strength, B's willingness to use it (their activeness) and their negativeness towards A. Thus the greater the product in absolute terms of a combination of these three variables the greater is A's perceptions of a threat from B.

(U) The steps in the analysis of the national attributes and the interactions are presented in Figure 3. A matrix containing the differences between the Soviets and Chinese on their attributes is derived from the national attribute sets. In all cases, the difference was derived by subtracting the Chinese value from the Soviet value. Factor analysis was then performed separately on the three data sets--the national attributes, the differences, and the interactions. Factor scores were calculated and plotted over time and the factor dimensions of each correlation matrix were interpreted. The steps in each factor analysis carried out in this study are depicted in Figure 4. For each of these analyses, the descriptive statistics, correlation matrix, eigenvalues, orthogonally rotated factors and factor scores are included. Section IV contains the factor analyses and interpretation of the attribute data and the difference matrix. Section V contains the factor analyses and interpretation of the interaction data.

(U) A canonical regression and correlation was then performed on the factor scores from the attributed difference matrix and the factor scores from the interaction data in order to examine whether the differences between the Soviets and the Chinese on their national attributes relate to the interactions between them. The results of the canonical regression analysis is presented in Section VI.

(U) A variety of sources were utilized in the data collection. During the data collection effort conflicting values for the same variable were often discovered in different sources. When this occurred, we selected what was thought to be the most reliable source. When classified data were available, it was generally accepted as being the most reliable. There are no missing data because one of the primary requirements of the study was to obtain exact factor scores of the Soviets and Chinese on the dimensions of attributes and interactions. If data were missing, that variable was eliminated. This made it impossible to include all the variables that originally had been deemed important.[39] Hopefully, the attributes and interactions which have been retained are sufficient to describe the Sino-Soviet relationship.

(U) Very little coding was involved because the data was simply transcribed from secondary or tertiary sources. Checks of intercoder reliability were, therefore, irrelevant and unnecessary. However, several checks for clerical error were made.

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[39] See "Second Quarterly Report for Project TRIAD," BSR 2581, Bendix Aerospace Systems Division, under Contract F44620-68-C-0083 for AFXDOC, USAF, January 6, 1969 (Confidential) for original list of variables selected for analysis.

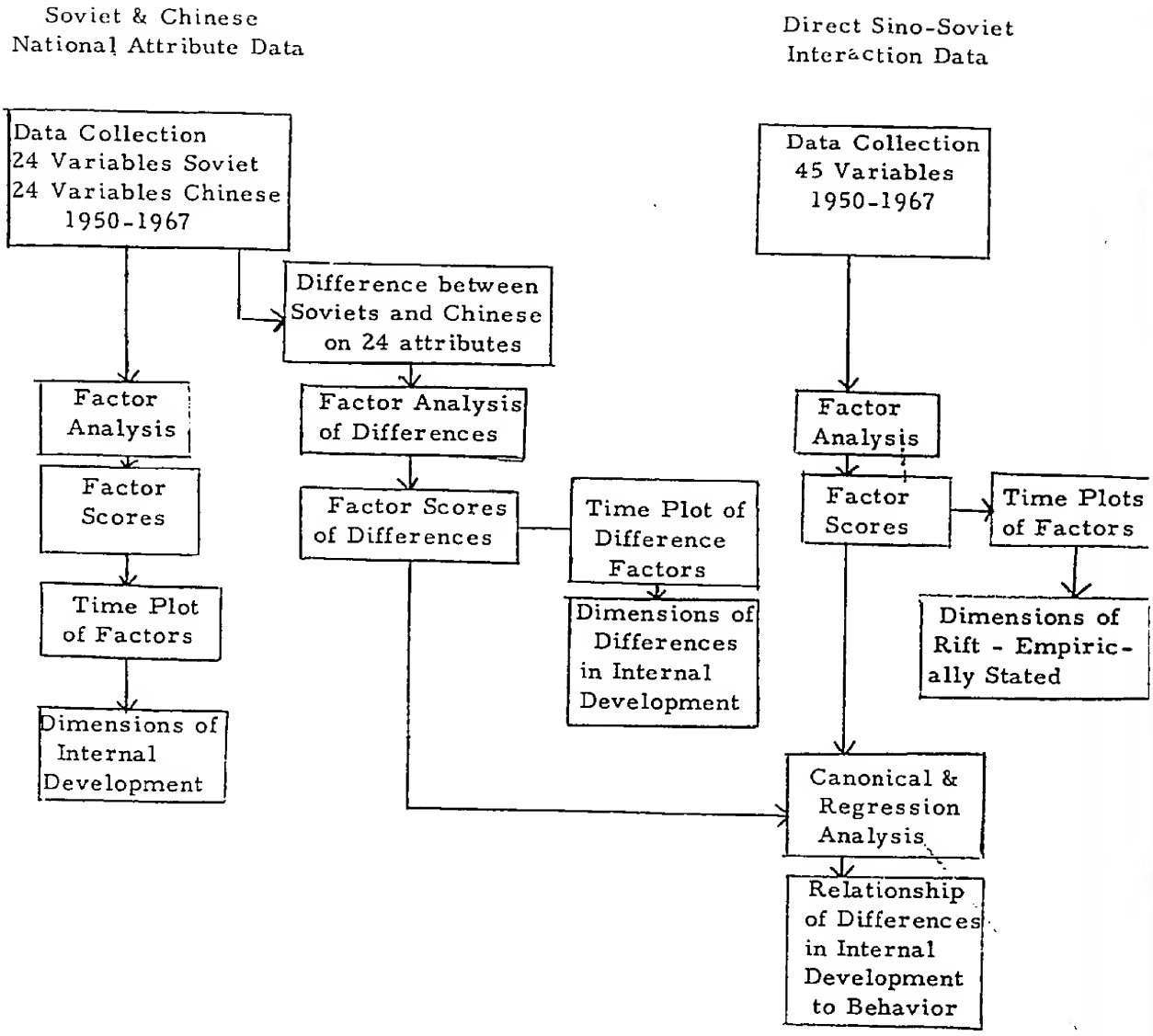

FIGURE 3
QUANTITATIVE ANALYSIS OF SINO-SOVIET NATIONAL ATTRIBUTES AND INTERACTIONS

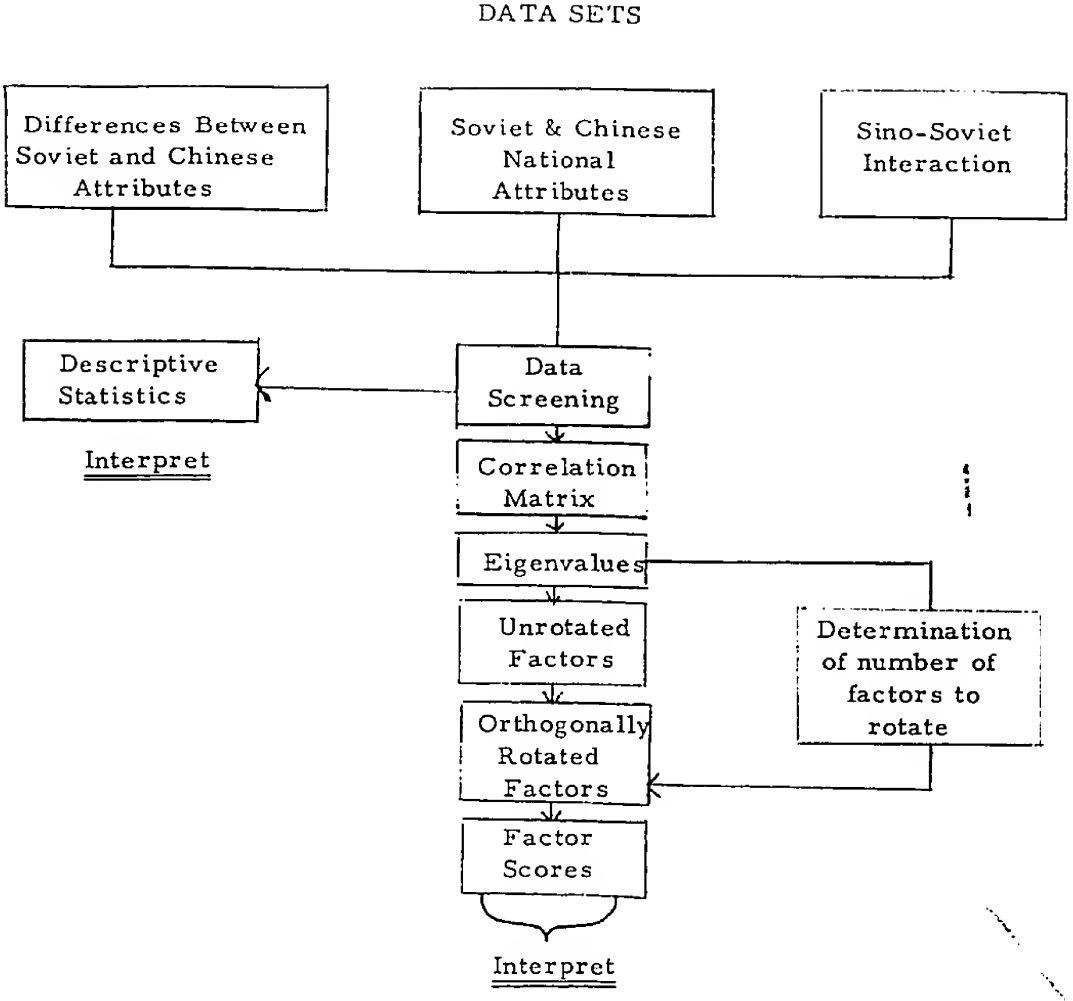

FIGURE 4
STEPS IN THE FACTOR ANALYSIS OF SINO-SOVIET NATIONAL ATTRIBUTE AND INTERACTION DATA

B. METHODS OF ANALYSIS

(U) Two methods of analysis were used in this study; component factor analysis and canonical regression and correlation analysis. A brief description of each is given below.

1. Component Factor Analysis[40]

(U) Component factor analysis is a model which delimits independent patterns of interrelationships. Component factor analysis was used in this study for two primary reasons: the need for parsimony of description, and the need for independent predictive variables. The need for parsimony of description is widely accepted as one of the primary functions of any science, no less so in the behavioral sciences where parsimony is a difficult ideal to achieve. It is also essential for policy planners if they are to work with a manageable number of concepts. Since component factor analysis extracts factors in the order of their relative importance, we were also able to eliminate those dynamic patterns which were of little consequence. In fact, among all of our studies, the maximum number of factors retained was six while the minimum percent of variance explained by these delineated factors never fell below 75 percent of the total variance for all observed measures.

(U) The purposes of this study went far beyond description of dynamic patterns and here again we find factor analysis to be an important tool. With the increased interest in predictive or dynamic modeling involving simple linear regression techniques, we find increased concern over the difficult problem of multicollinearity the problem of correlated or interrelated predictor variables. Multicollinearity is a vexing problem in regression analysis, for if it is present the regressions (prediction equations) can lead to false inferences and poor predictions. Component factor analysis determines a minimum set of statistically independent dimensions (patterns) which retain the information in the original data. In place of the original data for regression analysis, we can then use these more parsimonious dimensions as predictors, and since they are uncorrelated we sidestep the problem of multicollinearity all together.

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[40] For a good description of factor analysis see, Harry Harman, Modern Factor Analysis, Chicago: University of Chicago Press, 1967; Raymond Gattell, Factor Analysis, New York: Harper and Brothers, 1952; R.J. Rummel, Applied Factor Analysis, Evanston: Northwestern University Press, 1969: and Jack Vincent, "Factor Analysis as a Research Tool in International Relations," paper presented at the Sixty-fifth Annual Meeting of the American Political Science Association, New York City, September 2-6, 1969.

2. Canonical Regression and Correlation[41]

(U) Canonical regression and correlation is relatively new in its application to this type of work. The canonical model as developed by Hotelling, Horst and others is a particular type of factor analysis where the criteria of factoring is that the factors, called canonical variates, be derived so that they maximize the linear relationships between observed variables from two sets of data (that is, maximize the prediction of one set of data from another set). Another way of looking at canonical regression is as an extension of the multiple regression model. In multiple regression, one considers the dependence of a single variable on a set of variables, usually called the independent variables or predictors. In canonical regression, one is now concerned with the dependence of two or more variables on some other set of variables, called the independent set. Since the variables in both the dependent and independent sets of variables may vary along more than one dimension, in canonical regression we determine the dimensions of variation within each set first, and then the relationships between the dimensions of each set are found. Since the determination of the dimension within each set is in effect a component factor analysis, we have the analogy of canonical regression to factor analysis used previously.

(U) Canonical correlation and regression is thus a transformation, simultaneously, of two sets of factor scores to a new solution which relates the two sets maximally. The new rotation results in an orthogonal inter-set correlation matrix with the canonical correlations in the diagonals of the correlation matrix. Thus each association between patterns is a partial relationship since the derived variates are related only to that one variate from the other set. That the sum of squares over the original factors in the canonical beta weight matrices are unity demonstrates that the canonical solution is a true rotation, just as varimax was a true rotation of the unrotated factor loading matrix. Knowing this, and knowing the canonically derived factor scores--which are rotations of the original varimax factor scores--we can derive the new canonically rotated factor loading matrix by inversely rotating the varimax factor loading matrix using the beta regression weights as the matrix of rotation.

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[41] For a more detailed discussion of canonical regression see Donald F. Morrison, Multivariate Statistical Methods, New York: McGraw Hill, 1967; J. W. Hooper, "Simultaneous Equations and Canonical Correlation Theory," Econometrica, Vol. XXVII, 1959, pp. 245-256, and Warren Phillips and Dennis Hall, The Importance of Governmental Structure as a Taxonomic Scheme for Nations, DON Report, No. 18, University of Hawaii, January 1969

SECTION IV

SOVIET AND CHINESE NATIONAL ATTRIBUTE ANALYSIS

A. DESCRIPTION OF DATA

(U) As discussed in Section II, R. J. Rummel in his research on the Dimensionality of Nations Project[42] and as part of his field theory of social action[43] devised two analytical categories to indicate the domains in which variables function. These two categories are the behavioral system (space) and the attribute system (space). The behavioral system encompasses the behavior of governments and sub-national groups in nations toward each other. The attribute system comprises those characteristics of a nation that distinguishes it from other nations. The theory is that the Euclidean distance between two nations in the space of their attributes are forces acting on the location of the dyad in the behavior space.

(U) In this section we report the results of the attribute space analysis for the Soviet Union and China across the time span 1950-1967. In Section V, Soviet and Chinese interactions are examined. Because one of our goals is to predict from Soviet and Chinese national attributes to the interactions between these two nations, it is necessary first to identify patterns in their attributes.

(U) Since the characteristics of a nation are too numerous and diffuse to allow the inclusion of all possible measures in the study, a selection process was undertaken to choose the most important and relevant indicators. Much of the traditional and quantitative literature was surveyed for suggestions on important indicators.[44]

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[42] See R.J. Rummel, The DON Project: A Five Year Research Program, op. cit.,

[43] See R.J. Rummel, "A Social Field Theory of Conflict," Peace Research Society Papers, IV, 1965, pp. 131-150. See also R.J. Rummel, "Indicators of International Behavior," paper presented at 1969 American Political Science Association Annual Meeting, New York, September, 1969.

[44] See Section II of this volume for a discussion of past research surveyed and utilized in the selection of variables and methods of analysis for this study.

(U) Although the work done by Rummel[45] and others[46] was useful in the identification of the important "physical" attributes of nations, all of the variables deemed to be important by them were not included in this study. The closed nature of the Chinese and Soviet systems causes severe problems in the availability of data thus eliminating the use of several variables. Moreover, some of the suggested variables such as descriptors of the political system of a country were basically irrelevant to the study. The attributes finally selected are generally considered as adequate indicators of the physical characteristics of a nation.

(U) Although not included in previous works, perceptual variables were added to this study, first because of the importance that both the Soviets and Chinese place on verbal and written communication, and secondly because there is strong support for the view that the perceptions of a nation influence the behavior of that nation.[47] With the inclusion of the perception variables, we can discover if the perceptions of the Soviets and Chinese relate to changes in their interactive behavior or if their perceptions are isolated on their own dimensions with no relationship to "reality." The perception variables in this study were obtained from a content analysis of selected Soviet and Chinese official statements about each other.

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[45] See R. J. Rummel, "Some Attributes and Behavioral Patterns of Nations," Journal of Peace Research, No. 2, 1967, pp. 196 -206; and "Indicators of Cross-National and International Patterns," op. cit.

[46] See, for example, Jack Sawyer, "Dimensions of Nations: Size, Wealth and Politics," American Journal of Sociology, Vol. LXXIII, September, 1967 pp. 145-172.

[47] See, for example, the work by Ole Holsti, David Findlay, and Richard Fagen, Enemies in Politics, Chicago: Rand McNally, 1967; Richard Brody, "Cognition and Behavior: A Model of Inter-State Relations," in O. Harvey, ed., Experience, Structure and Adaptability, New York: Springer Publishing Co., 1966; Ole Holsti, Richard Brody and Robert North, Theory and Measurement of Interstate Behavior: A Research Application of Content Analysis, Stanford, California: Studies in International Conflict and Integration, 1964; P. Terrence Hopmann, International Conflict and Cohesion in International and Political Coalitions, Stanford University, 1969, unpublished Ph. D. dissertation; and Nazli Choucri, "The Perceptual Base of Nonalignment," Journal of Conflict Resolution, Vol. XIII, No. 1, March 1969, pp. 55-74.

(U) Within the space of all national attributes, we finally selected a subspace of 48 attributes to measure the Soviet Union and China. This sub-space is composed of two sets of 24 variables each: one set describes national attributes of the Soviet Union, the other set describes national attributes of Communist China (See Figure 5).

(U) Each set contains two groups of variables, 17 "physical" variables and 7 perception variables. The 17 physical variables include economic, military, demographic, and political measures. Data were collected for the Soviets and the Chinese on each of these variables by year, for the period 1950-1967. The 7 perception variables are measures of Soviet and Chinese publicly and officially stated perceptions of the United States by year, for the period 1950-1967. Table 2 lists the names for the set of 24 Soviet variables and Table 3 lists the names for the set of 24 Chinese variables. Also included are the eight character computer code names.

(U) As previously discussed, Rummel defines one property of the attribute space as the distance vector[48] between points in the space. In this analysis, the Euclidean distances between each point in the set of Soviet attributes and each corresponding point in the set of Chinese attributes are calculated and presented as the Difference Matrix. Table 4 lists the names for the variables contained in the Difference Matrix.

(U) Besides the perception variables mentioned above, 14 other perception variables were derived from the content analysis. Seven of these variable measure Soviet perceptions of the Chinese and 7 measure Chinese perceptions of the Soviets. By combining the 7 Soviet perception variables with the set of Soviet attributes we created an enhanced set of 31 Soviet variables, and in a similar manner by combining the 7 Chinese perception variables with the set of Chinese attributes we created an enhanced set of 31 Chinese variables. (See Figure 5.) The variable names and computer acronyms for these additional perception variables are presented in Table 5.

B. ANALYSIS OF SOVIET AND CHINESE NATIONAL ATTRIBUTES

(U) Component factor analysis was used to examine Soviet and Chinese national attributes. Factor analysis has been defined as a "means by which the regularity and order in phenomena can be discerned." It can take almost any number of measurements and observations and resolve them into their distinct patterns of occurrence. It is therefore most appropriate for our purpose in this section to use factor analysis to systematically discover the patterns of Soviet and Chinese attributes across time.

[48] It is this distance vector between two points which is theorized to perdict the interactions between those two nations.

	SOVIET UNION	COMMUNIST CHINA
PHYSICAL ATTRIBUTES	17 VARIABLES	17 VARIABLES
PERCEPTIONS OF EACH OTHER	of CC: 7 VARIABLES	of SU: 7 VARIABLES
PERCEPTIONS OF UNITED STATES	7 VARIABLES	7 VARIABLES

FIGURE 5

SUB-SPACE OF NATIONAL ATTRIBUTES

TABLE 2

SOVIET NATIONAL ATTRIBUTES: ACRONYM TABLE

Variable Name	Eight Character Computer Code Name
Soviet Economic Aid to Less Developed Countries	SEAIDLDC
Soviet Gross National Product	SOV GNP
Soviet Exports	SOV EXPT
Soviet Imports	SOV IMPT
Soviet Imports/GNP	SIMP/GNP
Soviet Exports/GNP	SEXP/GNP
Soviet Energy Consumption	SENY CON
Soviet Agricultural Production	SAGR PRD
Soviet Steel Production	SSTL PRO
Soviet Population	SOV POPN
Soviet Defense Budget	SDEF BUD
Soviet Defense Budget/GNP	SDEF/GNP
Soviet Fighter Aircraft	SFGT AIR
Soviet Armed Forces	SARM FOR
Soviet Submarines	SOV SUBS
Soviet ICBM's Deployed	SICBM DP
Soviet Treaties	SOV TRET
The United States Perceived as Strong	SU ST US
The United States Perceived as Weak	SU WK US
The United States Perceived as Active	SU AC US
The United States Perceived as Passive	SU PA US
The United States Perceived as Positive	SU PO US
The United States Perceived as Negative	SU NG US
Perceived Threat from the United States	SU TP US

TABLE 3

CHINESE NATIONAL ATTRIBUTES: ACRONYM TABLE

Veriable Name	Eight Character Computer Code Name
Chinese Economic Aid to Less Developed Countries	CEAIDLDC
Chinese Gross National Product	CPR GNP
Chinese Exports	CPR EXPT
Chinese Imports	CPR IMPT
Chinese Imports/GNP	CIMP/GNP
Chinese Exports/GNP	CEXP/GNP
Chinese Energy Consumption	CENY CON
Chinese Agricultural Production	CAGR PRO
Chinese Steel Production	CSTL PRO
Chinese Population	CPR POPN
Chinese Defense Budget	CDEF BUD
Chinese Defense Budget/GNP	CDEF/GNP
Chinese Fighter Aircraft	CGFT AIR
Chinese Armed Forces	CARM FOR
Chinese Submarines	CPR SUBS
Chinese ICBM's Deployed*	CPR TRET
Chinese Treaties	CC TRET
The United States Perceived as Strong	CC ST US
The United States Perceived as Weak	CC WK US
The United States Perceived as Active	CC AC US
The United States Perceived as Passive	CC PA US
The United States Perceived as Positive	CC PO US
The United States Perceived as Negative	CC NG US
Perceived Threat from the United States	CC TP US

* Deleted for attribute analysis because of zero variance but included in Difference Matrix.

TABLE 4

DIFFERENCE BETWEEN THE SOVIETS AND CHINESE ON 24 ATTRIBUTES: ACRONYM TABLE

Variable Name	Eight Character Computer Printout Name
Economic Aid to Less Developed Countries	ECONAID
Gross National Product	GNP
Exports	EXPORTS
Imports	IMPORTS
Imports/GNP	IMPT/GNP
Exports/GNP	EXPT/GNP
Energy Consumption	ENERGY
Agricultural Production	AGRICPRO
Steel Production	STEEL PR
Population	POPULTN
Defense Budget	DEFNCBUD
Defense Budget/GNP	DEFC/GNP
Fighter Aircraft	FIGHTERS
Armed Forces	ARMFORCE
Submarines	SUBMARIN
ICBM's Deployed	ICBMS
Treaties	TREATIES
The United States Perceived as Strong	STRG US
The United States Perceived as Weak	WEAK US
The United States Perceived as Active	ACTV US
The United States Perceived as Passive	PASS US
The United States Perceived as Positive	POST US
The United States Perceived as Negative	NEG US
Perceived Threat from the United State	TPER US

TABLE 5

PERCEPTION VARIABLES FROM INTERACTION SET:
ACRONYM TABLE

Variable Name	Eight Character Computer Printout Name
The Soviet Union Perceived as Strong by China	CC ST SU
The Soviet Union Perceived as Weak by China	CC WK SU
The Soviet Union Perceived as Active by China	CC AC SU
The Soviet Union Perceived as Passive by China	CC PA SU
The Soviet Union Perceived as Positive by China	CC PO SU
The Soviet Union Perceived as Negative by China	CC NG SU
Perceived Threat from the Soviet Union by China	CC TP SU
China is Perceived as Strong by the Soviet Union	SU ST CC
China is Perceived as Weak by the Soviet Union	SU WK CC
China is Perceived as Active by the Soviet Union	SU AC CC
China is Perceived as Passive by the Soviet Union	SU PA CC
China is Perceived Positively by the Soviet Union	SU PO CC
China is Perceived Negatively by the Soviet Union	SU NG CC
Perceived Threat from China by the Soviet Union	SU TP CC

(U) The analysis of Soviet and Chinese attributes is divided into four sections. The first section, "Soviet National Attributes," contains the results from two factor analyses; analysis of the enhanced set of 31 Soviet variables and the analysis of a part of that set, the group of 17 Soviet physical attributes. The second section, "Chinese National Attributes," contains the results from two factor analyses: the analysis of the enhanced set of 30 Chinese variables[49] and the analysis of a part of that set, the group of 16 Chinese physical attributes.[49] In the third section, we report the results of a factor analysis performed on the sub-space of Soviet and Chinese attributes as a whole, i.e., on the sets of Soviet and Chinese attributes combined. Section 4 is divided into four parts. The Difference Matrix is partitioned into 3 sub-matrices; the difference in the 17 physical variables comprise one sub-matrix; the differences in just the nine economic variables comprise another sub-matrix and the differences in the six military variables form the third submatrix. Factor analyses were then performed separately on the complete Difference Matrix and on each of the three sub-matrices.

(U) Component factor analysis of the Soviet and Chinese attributes has revealed that the most significant attribute pattern for both countries between 1950 and 1967 has been industrialization. Industrialization is found in every attribute analysis as the first and strongest factor, always characterized by growth and change across time. The other factors revealed by the analysis are much less stable and refer to defense postures, agricultural production, and such things as the perception of an American threat. Each analysis resulted in an extremely parsimonious description--only three or four factors were needed to explain at least 75% of the variance.

1. Soviet National Attributes

(U) Statistics for the 31 Soviet national attribute variables are presented in Table 6. Most of the measures were distributed normally across time from 1950 to 1967, although the values for "treaties signed" (Variable 17), "economic assistance to the

[49] The national attribute variable measuring ICBM's deployed was dropped from the set of Chinese physical attributes as it exhibited no variance over time-- that is, the value was zero (0) for all years.

TABLE 6

17 SOVIET NATIONAL ATTRIBUTES AND 14 PERCEPTION VARIABLES 1950 - 1967

STATISTICS

VARIABLE NO.	NAME	MEAN	SE	ST DEV	SE	SKEW	KURTOSIS
1	SEATDLOC	350.944	89.094	377.996	802139.187	1.151*	0.154
2	SOV GNP	239.444	15.935	67.606	28218.543	0.198	0.106
3	SOV EXPT	5225.887	543.055	2303.988	32773520.000	0.322	0.099
4	SOV IMPT	4923.719	513.007	2176.506	29247104.000	0.113	0.091
5	SIMP/GNP	19.500	0.944	4.003	98.955	-0.316	0.119
6	SEXP/GNP	20.611	0.886	3.759	87.219	-0.236	0.102
7	SENY CON	577932.375	46857.168	198798.125	2439987855 36.000	0.210	0.109
8	SAGR PRO	102377.750	3859.335	16373.773	1655238409.000	0.538	0.134
9	SSTL PRO	61081.941	5346.051	22669.859	3178533120.000	0.299	0.101
10	SOV POPN	208094.312	4307.805	18276.473	2062281984.000	-0.130	0.104
11	SDEF BUD	16172.219	395.946	1679.856	17422352.000	-0.363	0.195
12	SDEF/GNP	715.883	36.580	155.194	148701.562	0.653	0.112
13	SFGT AIR	9316.664	681.059	2889.490	51547248.000	-0.463	0.112
14	SARM FOR	4283.219	260.176	1103.832	7522624.000	0.628	0.082
15	SOVSUBS	23.500	6.726	28.535	5027.167	0.951	0.119
16	SICBM DP	105.556	45.214	191.825	227182.250	2.586**	0.378
17	SOV TRET	12.944	2.271	9.635	573.129	1.232*	0.181
18	SU ST US	3815.944	100.575	426.702	1124119.000	-1.416**	0.268
19	SU WK US	410.667	69.090	293.124	530475.250	2.216**	0.347
20	SU AC US	3938.278	119.870	508.684	1997565.000	2.190**	0.421
21	SU PA US	910.111	74.719	338.220	706256.125	0.319	0.099
22	SU PO US	1611.278	99.489	422.094	1099972.000	0.655	0.120
23	SU NG US	2574.889	89.860	381.243	897362.812	-0.021	0.274
24	SU TP US	38976.832	2579.494	10943.875	739443712.000	1.031	0.253
25	SU ST CC	3844.222	81.673	343.962	730441.187	0.476	0.130
26	SU WK CC	219.556	22.518	96.807	57859.691	0.776	0.147
27	SU AC CC	3134.889	78.120	331.437	678212.312	0.363	0.129
28	SU PA CC	877.000	40.006	169.730	177859.750	1.619**	0.284
29	SU PO CC	3035.833	149.487	634.219	2483370.000	-0.808	0.127
30	SU NG CC	966.000	123.534	524.112	1695942.000	0.779	0.106
31	SU TP CC	11739.164	1581.634	6710.305	2780019200.000	0.867	0.121

SE - SKEW = 0.536
SE - KURTOSIS = 1.033

* SIGNIFICANT AT .05 LEVEL
** SIGNIFICANT AT .01 LEVEL

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ninety less developed nations" (Variable 1), "number of ICBM's deployed" (Variable 16), and several of the perception variables were outlyers for certain years. Table 7 shows the Pearson product moment correlations between these 31 measures.[50] The fact that the economic variables are highly intercorrelated indicates that a steady and balanced pattern of industrialization may emerge for the Soviets.

a. Seventeen Soviet Attributes

(U) The correlations presented in Table 7 were factored twice; first, factoring only the 17 physical variables and second factoring all 31 variables (the 17 plus the 14 perception variables). The table of positive eigenvalues for the 17 variables is shown in Table 8. Two factors are sufficient to explain 87.4 percent of the total variance in these 17 variables. These two factors were then rotated to an orthogonal simple structure.[51] The rotated factor matrix is shown in Table 9. The predominant factor, which we named Industrialization accounts for almost seventy percent of total variance. This factor is a clustering of the variables, Soviet "GNP," "trade," "energy consumption," and "steel production." Since this pattern exhibits steady growth, "population" also appears as a high loading variable. Noteworthy is the fact that "Soviet defense budget as a percent of GNP" and "Soviet men under arms" are inversely related to industrialization. This when seen in the light of the positive loadings of "submarines with a nuclear launch capability" and number of "ICBM's deployed" would indicate a changing defense stature for the Soviets during the period 1950-1967. That is, as time passed the Soviets decreased their dependence and expenditures on conventional military forces and increased their capability in strategic nuclear delivery systems. The plot of scores for this factor is presented in Figure 6. The slight drop in the pattern between 1966 and 1967 is due to increased Soviet defense expenditures, an increase in the size of the armed forces, and a slight fall in agricultural production in 1967.

(U) The second orthogonally rotated factor from Table 9 accounts for about twenty percent of total variance. This factor named Nuclear Transition indicates that the total number of "Soviet treaties signed" and the number of "Soviet fighter

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50 The coefficient of correlation express the degree of relationship between the row and column variables of the matrix. The closer the coefficient is to zero the less the relationship; the closer to $\pm$ 1.0, the greater the relationship. A negative sign indicates the variables are inversely related.

51 Orthogonal as used here means independent. Thus, the aim of the orthogonal rotation is to obtain a set of factors which has the property that any given factor will be highly correlated with some of the variables but uncorrelated with the rest.

TABLE 7

17 SOVIET NATIONAL ATTRIBUTES AND 14 PERCEPTION VARIABLES 1950 - 1967

CORRELATIONS

NO.	VARIABLE	1 SEATDLOC	2 SOV GNP	3 SOV EXPT	4 SOV IMPT	5 SIMP/GNP	6 SEXP/GNP	7 SENY CON	8 SAGR PRO	9 SSTL PRO	10 SOV POPN	11 SDEF BUD	12 SDEF/GNP
1	SEATDLOC	1.0000											
2	SOV GNP	0.6329	1.0000										
3	SOV EXPT	0.6158	0.9911	1.0000									
4	SOV IMPT	0.6556	0.9852	0.9898	1.0000								
5	SIMP/GNP	0.6300	0.9210	0.9334	0.9652	1.0000							
6	SEXP/GNP	0.5980	0.9279	0.9567	0.9623	0.9729	1.0000						
7	SENY CON	0.6428	0.9949	0.9861	0.9792	0.9170	0.9195	1.0000					
8	SAGR PRO	0.5910	0.7405	0.6834	0.6619	0.5715	0.5748	0.7443	1.0000				
9	SSTL PRO	0.6219	0.9968	0.9968	0.9907	0.9282	0.9412	0.9907	0.7051	1.0000			
10	SOV POPN	0.6432	0.9925	0.9853	0.9909	0.9537	0.9512	0.9878	0.7159	0.9900	1.0000		
11	SDEF BUD	0.4038	0.8382	0.8559	0.8287	0.8042	0.8448	0.8281	0.6083	0.8520	0.8290	1.0000	
12	SDEF/GNP	-0.6581 1	-0.9195 2	-0.8898 3	-0.9093 4	-0.8603 5	-0.8307 6	-0.9165 7	-0.6758 8	-0.9024 9	-0.9288 10	-0.5786 11	1.0000 12
13	SECT AIR	-0.2000	-0.4878	-0.5350	-0.4838	-0.3172	-0.3912	-0.4758	-0.2409	-0.5289	-0.4109	-0.4668	0.2986
14	SARM FOR	-0.6627	-0.8749	-0.8554	-0.8727	-0.8523	-0.8244	-0.8929	-0.6999	-0.8576	-0.8971	-0.5473	0.9444
15	SOVSUBS	0.5138	0.9297	0.9507	0.9270	0.8221	0.8627	0.9186	0.5849	0.9490	0.8980	0.8173	-0.7888
16	SICOM OP	0.3225	0.7813	0.7867	0.7157	0.5483	0.6229	0.7858	0.6014	0.7872	0.7085	0.7545	-0.5801
17	SOV TRET	0.0126	-0.0453	-0.1241	-0.0985	-0.0425	-0.1080	-0.0158	0.3631	-0.0992	0.0054	-0.1861	-0.1261
18	SU ST US	0.0847	-0.0213	0.0016	0.0256	0.0317	-0.0079	0.0004	-0.0606	-0.0066	-0.0417	0.0639	0.1202
19	SU WK US	-0.2634	-0.4175	-0.4802	-0.4602	-0.4283	-0.5138	-0.3920	-0.0140	-0.4410	-0.4003	-0.2746	0.3911
20	SU AC US	-0.1346	-0.1477	-0.1163	-0.1099	-0.0705	-0.0730	-0.1736	-0.2534	-0.1250	-0.1508	0.0164	0.2483
21	SU PA US	-0.0949	-0.1966	-0.2420	-0.2345	-0.2132	-0.2646	-0.1911	-0.0532	-0.2179	-0.1726	-0.2309	0.0581
22	SU PO US	0.6804	0.6700	0.6867	0.7203	0.7269	0.7218	0.6779	0.2680	0.6755	0.6969	0.4692	-0.6934
23	SU NG US	-0.5157	-0.2335	-0.2135	-0.2302	-0.2799	-0.2586	-0.2687	-0.2847	-0.2007	-0.2703	-0.1658	0.2508
24	SU TP US	-0.2899	-0.2184	-0.1810	-0.1776	-0.1752	-0.1887	-0.2387	-0.3290	-0.1857	-0.2481	-0.0658	0.3130

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TABLE 7 -cont'd-

17 SOVIET NATIONAL ATTRIBUTES AND 14 PERCEPTION VARIABLES 1950 - 1967

CORRELATIONS

		1	2	3	4	5	6	7	8	9	10	11	12
NO.	VARIABLE	SEATOLOC	SOV GNP	SOV EXPT	SOV IMPT	SIMP/GNP	SEXP/GNP	SENY CON	SAGR PRO	SSTL PRO	SOV POPN	SDEF BUD	SDEF/GNP
25	SU SF CC	-0.2788	-0.6543	-0.6433	-0.6235	-0.5304	-0.5571	-0.6534	-0.5384	-0.6522	-0.6577	-0.3640	0.7164
26	SU WK CC	0.2505	0.7107	0.7413	0.7053	0.6135	0.6611	0.7061	0.4747	0.7260	0.6805	0.6501	-0.5713
27	SU AC CC	0.1866	0.4589	0.4356	0.4429	0.3166	0.3493	0.4502	0.3282	0.4922	0.3930	0.6112	-0.1991
28	SU PA CC	0.1060	0.5803	0.6103	0.6062	0.6008	0.6445	0.5573	0.3037	0.5935	0.6002	0.4813	-0.5555
29	SU PT CC	-0.3554	-0.6662	-0.6836	-0.6531	-0.5469	-0.5563	-0.6762	-0.4453	-0.6854	-0.6252	-0.6755	0.4874
30	SU NG CC	0.2934	0.7002	0.7341	0.7095	0.5992	0.6158	0.7044	0.3649	0.7295	0.6572	0.6142	-0.5552
31	SU IP CC	0.3087	0.6786	0.7119	0.6842	0.5652	0.5838	0.6842	0.3748	0.7089	0.6264	0.6427	-0.4946

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17 SOVIET NATIONAL ATTRIBUTES AND 14 PERCEPTION VARIABLES 1950 - 1967

CORRELATIONS

NO.	VARIABLE	13 SFGT AIR	14 SARM FOR	15 SOVSUBS	16 SICBM OP	17 SOV TRET	18 SU ST US	19 SU WK US	20 SU AC US	21 SU PA US	22 SU PO US	23 SU NG US	24 SU TP US
13	SFGT AIR	1.0000											
14	SARM FOR	0.2070	1.0000										
15	SOVSUBS	-0.7632	-0.7160	1.0000									
16	SICBM OP	-0.7739	-0.5170	0.8765	1.0000								
17	SOV TRET	0.6773	-0.2579	-0.3473	-0.3194	1.0000							
18	SU ST US	-0.1474	0.0809	0.0510	0.1076	-0.1680	1.0000						
19	SU WK US	0.4778	0.3567	-0.5340	-0.3998	0.5834	-0.0700	1.0000					
20	SU AC US	-0.1258	0.2495	-0.0489	-0.0644	-0.3499	0.2589	-0.3715	1.0000				
21	SU PA US	0.3909	0.1361	-0.3114	-0.3211	0.2610	-0.6799	0.4913	-0.5879	1.0000			
22	SU PO US	-0.1721	-0.0645	0.5935	0.3772	-0.1427	0.1903	-0.4730	-0.2819	-0.1628	1.0000		
23	SU NG US	-0.3465	0.3372	-0.0137	-0.0018	-0.3591	0.0764	-0.0081	0.2961	-0.1688	-0.5028	1.0000	
24	SU TP US	-0.2797 13	0.3314 14	-0.0301 15	-0.0016 16	-0.4516 17	0.5918 18	-0.2487 19	0.7854 20	-0.6530 21	-0.3150 22	0.6711 23	1.0000 24
25	SU ST CC	0.3709	0.7129	-0.6194	-0.4826	-0.2599	0.3021	0.1630	0.1714	0.1021	-0.2559	0.0184	0.2628
26	SU WK CC	-0.6479	-0.5340	0.7926	0.7319	-0.1811	0.0670	-0.2954	-0.2335	-0.2042	0.4033	-0.0958	-0.1556
27	SU AC CC	-0.0455	-0.1124	0.6672	0.7295	-0.5177	0.1212	-0.1097	0.1381	-0.2512	0.0094	0.2799	0.2432
28	SU PA CC	-0.2558	-0.5159	0.5676	0.3392	0.0477	0.0117	-0.3225	-0.2626	-0.1077	0.4681	-0.0656	-0.1855
29	SU PO CC	0.7202	0.4205	-0.7722	-0.7607	0.2906	-0.0728	0.1281	0.1115	0.1481	-0.3362	0.0741	0.0821
30	SU NG CC	-0.8242	-0.4945	0.8560	0.7630	-0.4005	0.1433	-0.3222	-0.1826	-0.1939	0.4232	0.0695	-0.0200
31	SU TP CC	-0.8640	-0.4305	0.8515	0.8020	-0.4581	0.1981	-0.3045	-0.1423	-0.2322	0.3921	0.0688	0.0241

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TABLE 7 -cont'd

17 SOVIET NATIONAL ATTRIBUTES AND 14 PERCEPTION VARIABLES 1956 - 1967

CORRELATIONS

		25	26	27	28	29	30	31
	ADJ. VARIABLE	SU ST CC	SU WK CC	SU AC CC	SU PA CC	SU PO CC	SU NG CC	SU TP CC
25	SU ST CC	1.0000						
26	SU WK CC	-0.6469	1.0000					
27	SU AC CC	-0.2969	0.6420	1.0000				
28	SU PA CC	-0.5813	0.7227	0.1092	1.0000			
29	SU PO CC	0.5553	-0.8577	-0.8456	-0.4037	1.0000		
30	SU NG CC	-0.5609	0.8774	0.7370	0.5891	-0.8787	1.0000	
31	SU TP CC	-0.4705	0.8525	0.8110	0.4919	-0.8956	0.9862	1.0000

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TABLE 8

17 Soviet National attributes

TABLE OF POSITIVE EIGENVALUES

NO.	EIGENVALUE	PERCENT OF COMMUNALITY ALL (17) FACTORS Each	Cumulative
1	12.712	74.8	74.8
2	2.147	12.6	87.4
3	0.786	4.6	92.0
4	0.642	3.8	95.8
5	0.427	2.5	98.3
6	0.115	0.7	99.0
7	0.071	0.4	99.4
8	0.052	0.3	99.7
9	0.025	0.1	99.9
10	0.012	0.1	100.0
11	0.004	0.0	100.0
12	0.002	0.0	100.0
13	0.001	0.0	100.0
14	0.001	0.0	100.0
15	0.000	0.0	100.0
16	0.000	0.0	100.0
17	0.000	0.0	100.0

TRACE OF ORIGINAL MATRIX = 17.000
COMMUNALITY OVER 17 FACTORS = 17.000

TABLE 9

17 SOVIET NATIONAL ATTRIBUTES 1950 - 1967

ROTATED FACTOR MATRIX

	FACTOR NUMBER	1*	2**
SUM SQUARES OVER VARIABLES		11.536	3.322
PERCENT OF TOTAL VARIANCE		67.861	19.542

VARIABLE NO.	NAME	COMMUNALITY 2 FACTORS		
1	SEAICLDC	0.501	0.708	-0.021
2	SOV GNP	0.992	0.549	0.803
3	SOV EXPT	0.993	0.925	0.372
4	SOV IMPT	0.982	0.939	0.316
5	SIMP/GNP	0.881	0.918	0.196
6	SEXP/GNP	0.889	0.898	0.286
7	SENY CON	0.989	0.954	0.281
8	SAGR PRO	0.641	0.798	0.069
9	SSTL PRO	0.995	0.932	0.355
10	SOV POPN	0.989	0.961	0.231
11	SDEF BUD	0.743	0.735	0.450
12	SDEF/GNP	0.887	-0.940	-0.056
13	SFGT AIR	0.856	-0.236	-0.894
14	SARM FOR	0.904	-0.940	0.066
15	SGVSUBS	0.987	0.761	0.614
16	SICBM DP	0.788	0.596	0.698
17	SOV TRET	0.839	0.224	-0.868

Factor Names:

* Industrialization

** Nuclear Transition

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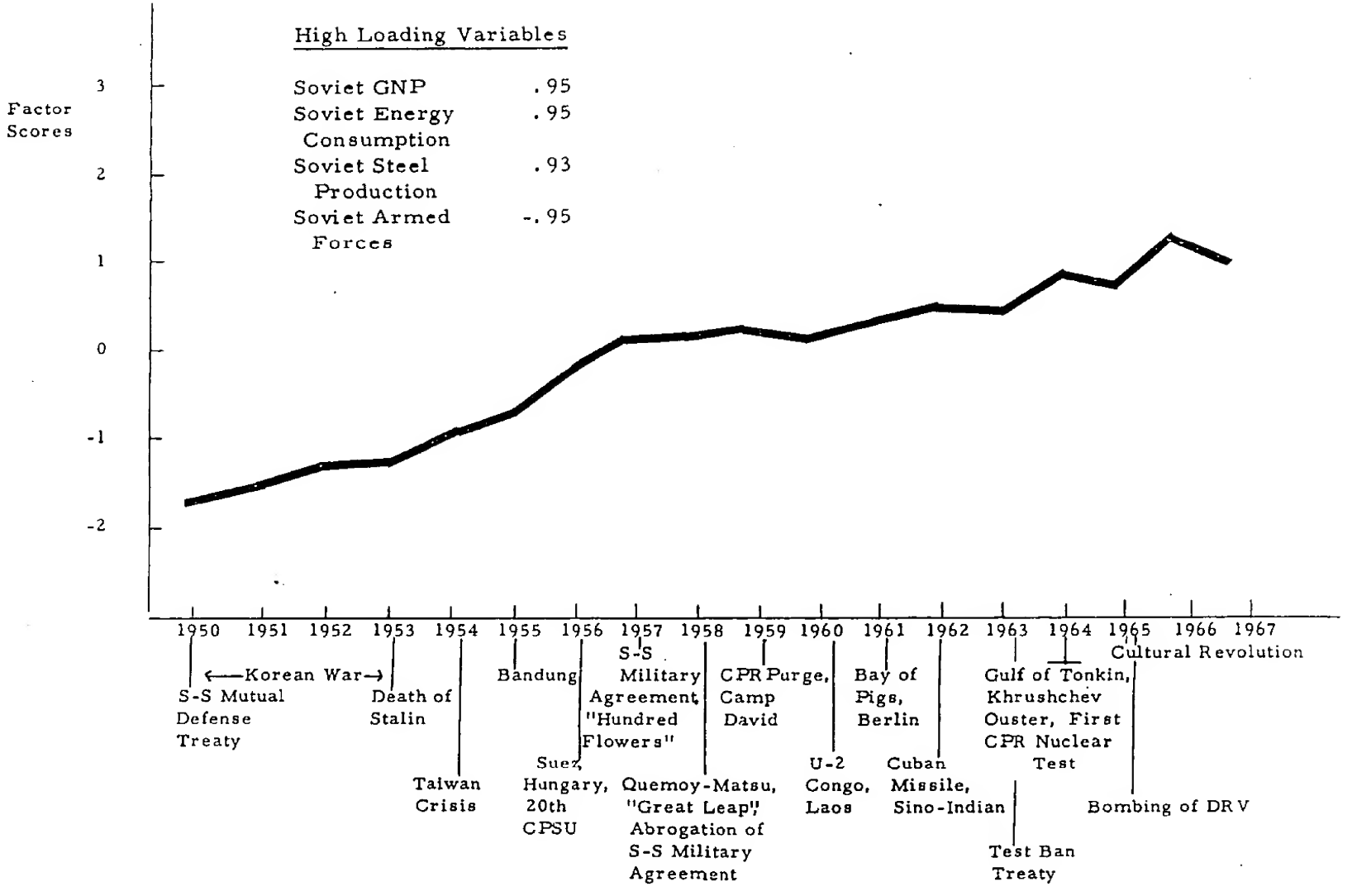

FIGURE 6

SEVENTEEN SOVIET ATTRIBUTES: FACTOR 1
SOVIET INDUSTRIALIZATION

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aircraft" varied together across time. The plot of scores for this factor is presented in Figure 7. Both treaties and fighter aircraft continued to increase in number until 1957-1959 -- note that their signs are negative -- and then fell off. This reduction corresponded to an increase in missile-launching submarines and ICBM's deployed during the post 1957 period. Because there were no missile submarines and ICBM's prior to this time, these variables loaded only moderately on the factor.

b. Thirty-One Soviet Attributes

(U) When the analysis of Soviet attributes is expanded to include both their perceptions of the US and Communist China, a more complex factor structure is obtained. The table of positive eigenvalues (Table 10) indicates that five or even six factors are now needed to explain the same amount of variance (87.4%) as was previously explained by only two factors. It was discovered, however, that most of the high loadings on the fourth, fifth, and sixth factors consisted of Soviet perceptions that had already loaded on the first three factors. We felt justified, therefore, in dropping the additional factors in the interest of parsimony.

(U) Table 11 shows the rotated factor matrix for a three factor solution. The first factor accounting for a little over 40 percent of total variance in the 31 measures, is our familiar Industrialization pattern. (Recall that it accounted for almost 68 percent of the total variance in the previous analysis.) The plot of scores for this factor is presented in Figure 8. Note that the Soviets viewed the US more positively as they developed industrially. This would seem to lend empirical support to those who suggest that as the Soviets have become more prosperous (i.e., industrialized) they also have become more of a status-quo power and are less bellicose in their behavior.

(U) The second factor is similar to the 17 Soviet attributes' Soviet Nuclear Transition factor, but it has interesting loadings on the Soviet perceptual variables of China. We labeled this factor Soviet Nuclear Transition and Perception of China as a Paper Tiger. The pattern is plotted in Figure 9. Soviet perceptions of Peking as "weak," "active," "negative," and simultaneously as a potential "threat" describe a pattern of generally decreasing magnitude until about 1957 when a transition seems to have taken place. This lasted until 1960 when a sharp upswing occurred. What is surprising about this factor is the fact that the Soviets perceived the CPR as negative and active at the same time as they perceived them as weak. This is contrary to expected behavior if one accepts the Newcomb model's

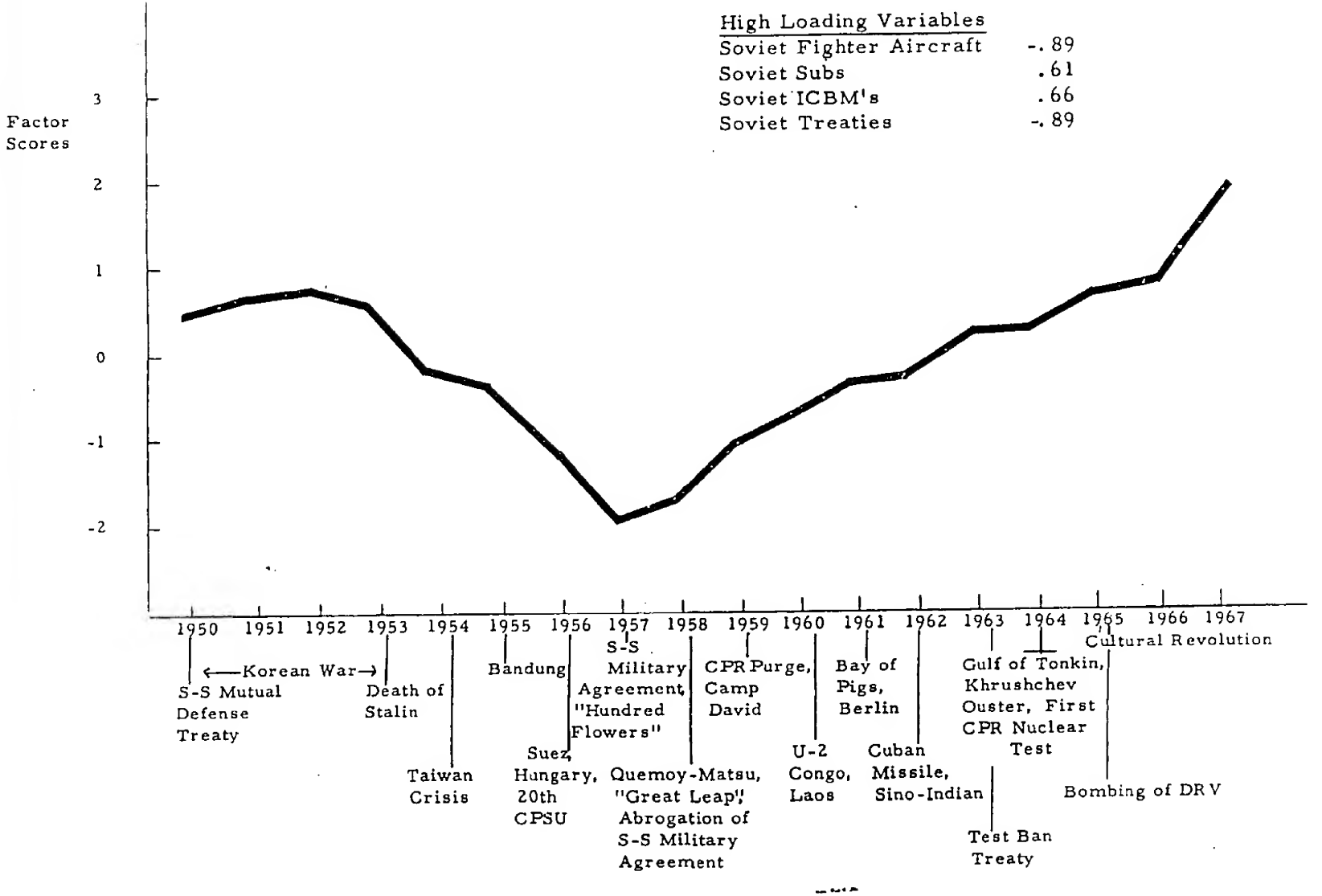

FIGURE 7

SEVENTEEN SOVIET ATTRIBUTES: FACTOR 2
SOVIET NUCLEAR TRANSITION

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TABLE 10

31 Soviet Attributes and Perception Variables

TABLE OF POSITIVE EIGENVALUES

NO.	EIGENVALUE	PERCENT OF COMMUNALITY ALL 31 FACTORS Each	Cumulative
1	10.557	34.5	5.5
2	4.714	15.2	49.7
3	2.567	8.3	78.0
4	1.479	4.8	82.7
5	1.383	4.5	87.2
6	1.026	3.3	91.1
7	0.778	2.5	94.6
8	0.652	2.1	96.7
9	0.509	1.6	97.3
10	0.287	0.9	98.3
11	0.212	0.7	98.9
12	0.142	0.5	99.4
13	0.105	0.3	99.7
14	0.075	0.2	99.9
15	0.029	0.1	99.9
16	0.020	0.1	100.0
17	0.010	0.0	100.0
18	0.000	0.0	100.0

TRACE OF ORIGINAL MATRIX = 31.000
COMMUNALITY OVER 18 FACTORS = 31.000

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TABLE 11

17 SOVIET ATTRIBUTES + 14 CONTENT ANALYSIS VARIABLES 3 FACTORS ROTATED

ROTATED FACTOR MATRIX

FACTOR NUMBER	1*	2**	3***
SUM SQUARES OVER VARIABLES	12.820	7.688	3.662
PERCENT OF TOTAL VARIANCE	41.354	24.799	11.814

VARIABLE NO.	NAME	COMMUNALITY 3 FACTORS			
1	SEATELDC	0.956	0.745	-0.018	0.004
2	SOV GNP	0.976	0.889	0.431	-0.017
3	SOV EXPT	0.948	0.879	0.462	0.044
4	SOV IMPT	0.923	0.904	0.403	0.054
5	SIRP/GNP	0.904	0.914	0.252	0.072
6	SEXP/GNP	0.918	0.904	0.304	0.094
7	SENY CON	0.976	0.892	0.423	-0.034
8	SIOR PRO	0.572	0.660	0.247	-0.275
9	SSTL PRO	0.983	0.875	0.465	0.021
10	SOV POPN	0.978	0.921	0.359	-0.033
11	SDEF BUD	0.704	0.777	0.507	0.094
12	SDEF/GNP	0.884	-0.909	-0.218	0.130
13	SEGT AIR	0.893	-0.141	-0.875	-0.326
14	SARM FOR	0.883	-0.923	-0.116	0.134
15	SDVSUBS	0.980	0.715	0.670	0.151
16	SIORM DP	0.791	0.469	0.734	0.114
17	SOV TRET	0.613	0.159	-0.493	-0.587
18	SU ST US	0.394	0.017	0.013	0.627
19	SU WK US	0.572	-0.444	-0.126	-0.599
20	SU AC US	0.657	-0.151	-0.076	0.793
21	SU PA US	0.711	-0.201	-0.114	-0.811
22	SU PO US	0.657	0.806	-0.001	0.083
23	SU NG US	0.478	-0.486	0.357	0.339
24	SU TP US	0.851	-0.321	0.122	0.856
25	SU ST CC	0.542	-0.536	-0.420	0.262
26	SU WK CC	0.806	0.476	0.756	-0.095
27	SU AC CC	0.854	0.064	0.905	0.170
28	SU PA CC	0.408	0.536	0.330	-0.109
29	SU PO CC	0.844	-0.365	-0.841	0.068
30	SU NG CC	0.897	0.407	0.855	0.028
31	SU TP CC	0.917	0.364	0.882	0.079

Factor Names:

* Industrialization

** Soviet Nuclear Transition and Perception of China as a Paper Tiger

*** Soviet Perception of US as a Threat

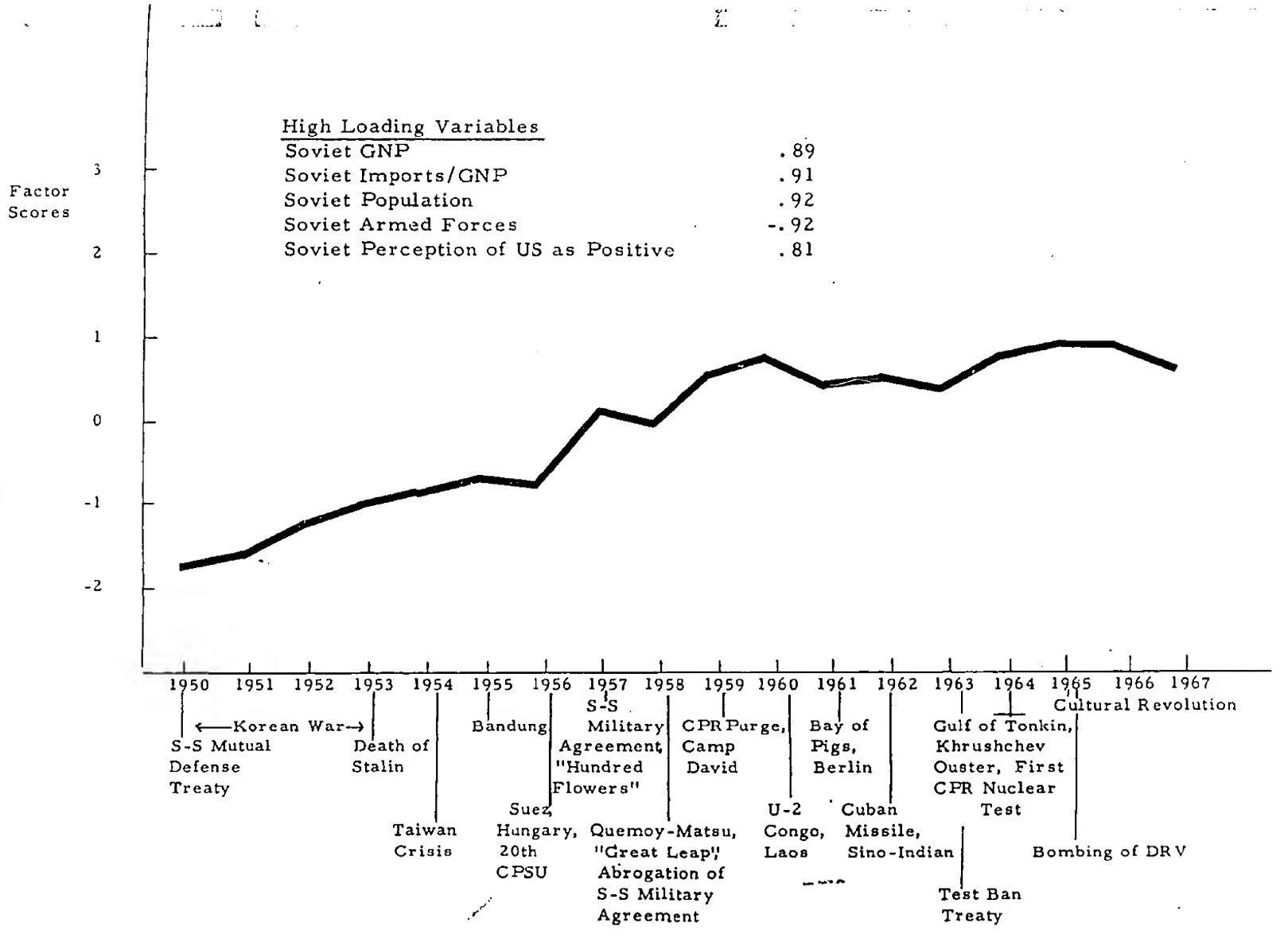

FIGURE 8

THIRTY-ONE SOVIET ATTRIBUTES: FACTOR 1
SOVIET INDUSTRIALIZATION

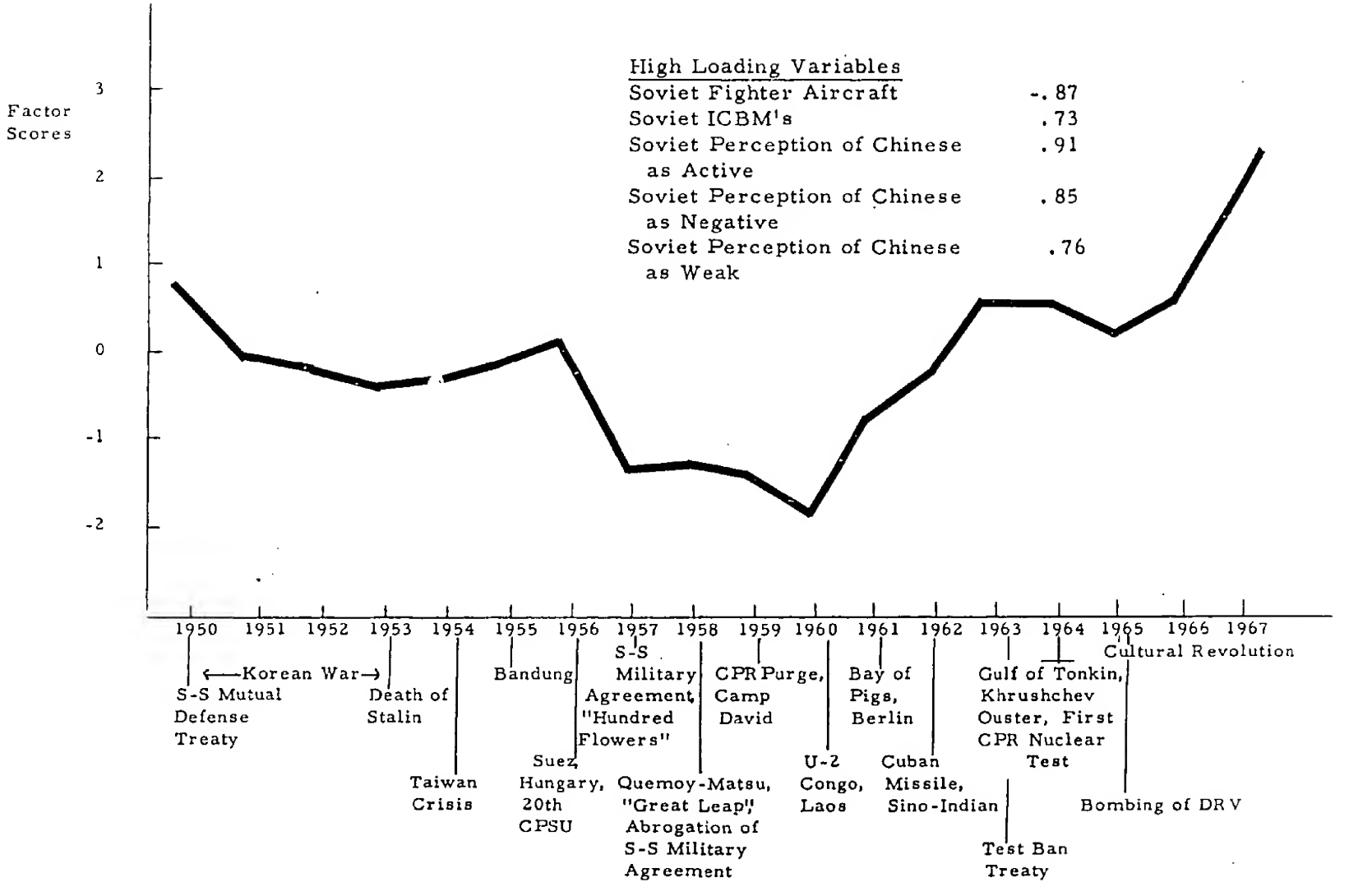

FIGURE 9

THIRTY-ONE SOVIET ATTRIBUTES: FACTOR 2
SOVIET NUCLEAR TRANSITION AND PERCEPTION OF CHINA AS PAPER TIGER

ability to predict cognitive balance when related to inte .te behavior.[52] This model predicts that if a nation perceives another nati negative he will also perceive that nation as active and strong--these latter two perceptions being a rationalization of his negative feelings. In this Soviet case, however, there seemed to be a conscious Soviet effort to present the Chinese in highly negative and aggressive terms while concurrently belittling their strength. Whether the Soviet leadership actually perceived the Chinese to be as weak as their statements would indicate is at least questionable. It may be that the Soviets wanted others to view the Chinese as negative and aggressive but they also wanted it firmly established that they themselves did not fear Peking. Thus, we have the "Paper Tiger" syndrome; that is, a set of perceptions which imply that China is bellicose and aggressive but that this makes little difference because of China's weakness and resulting inability to implement her negative and active intentions with concrete actions.

(U) The regularities exhibited in Factor 2 of Figure 7 as contrasted with the irregularities of Factor 2 of Figure 9 also would indicate that Soviet perceptions of Communist China did not change in a regular pattern but rather shifted quite markedly from one year to the next. However, the period after 1958 is quite similar for the two patterns.

(U) The third factor in this analysis is the most irregular of all as can be seen from Figure 10. This pattern is almost exclusively concerned with Soviet perceptions of the US and thus has been named Soviet Perception of US as a Threat Factor. The upward trend in the pattern of Figure 10 from 1961 until 1965 indicates that the Soviets viewed the US as more active and stronger and in more threatening terms during this period. It is interesting to note firstly that since 1965 this trend has reversed itself, and secondly that the Soviet views of the US were independent across time of Soviet views of China. Moscow's perceptions of Peking, for the most part, loaded on a different factor (i.e., were independent of) than did their perceptions of the US. This again does not seem to correspond to the expected behavior hypothesized by Newcomb's model which would suggest that the Soviet view of China should be related---either positively or negatively---to their views of the United States. It also, does not support the conventional wisdom which has stated that changes in Sino-Soviet relations can be explained by changes in their

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[52] See Theodore Newcomb, "An Approach to the Study of Communicative Acts", Psychological Review, Vol. VX, 1953, pp. 393-404. Newcomb, himself, only applied his model to inter-personal relations. It's utility in the realm of inter-state behavior has been suggested, however, by several authors. See for example, Ole Holsti, "External Conflict and Internal Consensus," in Philip Stone, et.al, eds., The General Inquirer, Cambridge, Mass.: MIT Press, 1966, pp. 343-358; and Hopmann, International Conflict and Cohesion, op. cit.

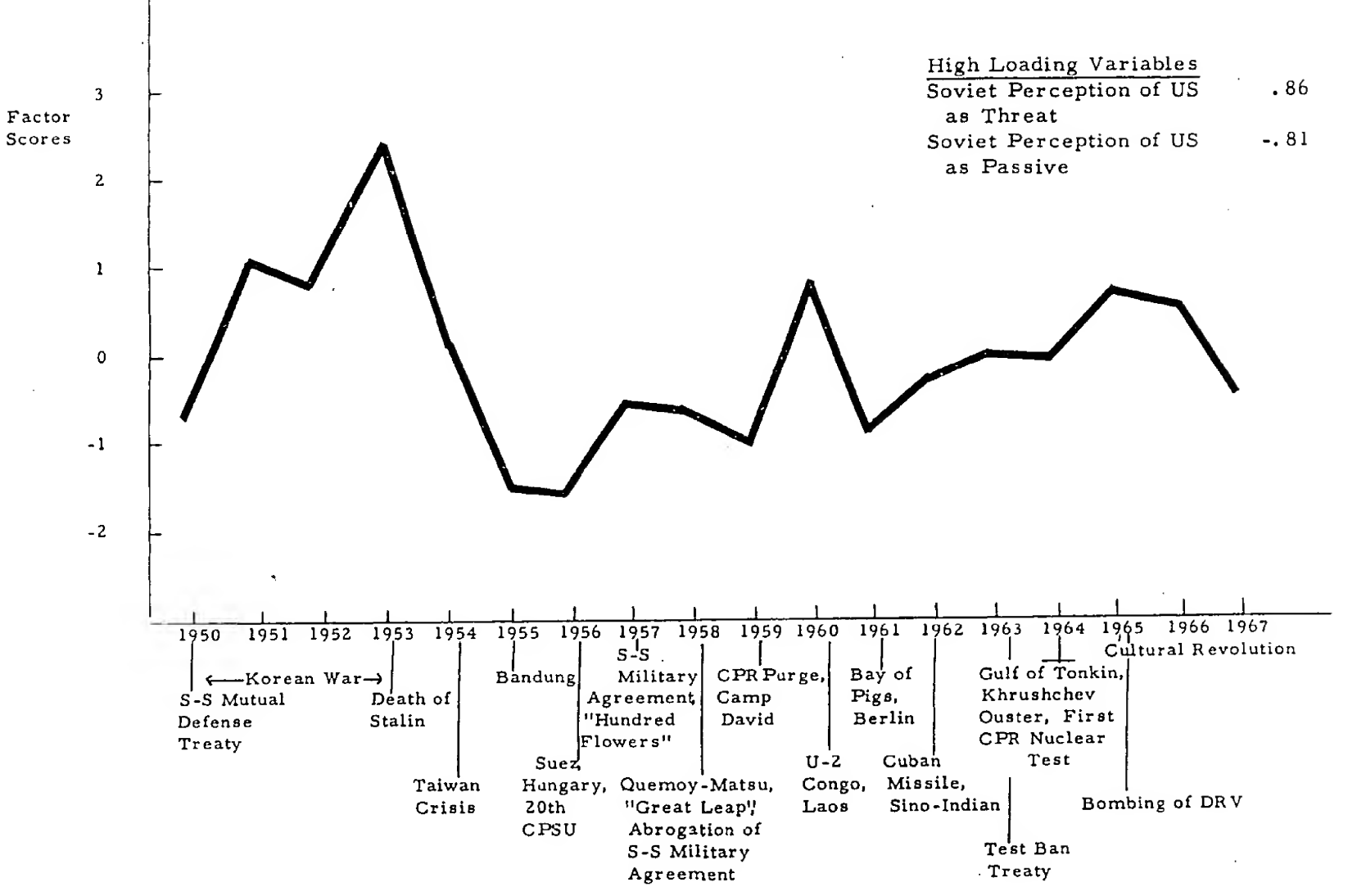

FIGURE 10

THIRTY-ONE SOVIET ATTRIBUTES: FACTOR 3
SOVIET PERCEPTION OF US AS THREAT

views of the United States. It must be kept in mind, however, that our findings apply only to sampled Soviet perceptions aggregated annually over an 18 year period. The 18 annual observations were forced by the fact that data on the selected attributes and interactions were available only for annual periods. The result is that we did not examine shifts in Moscow's perceptions of the US and China for specific high crisis or low crisis time points within this period. Under such conditions the model may not hold true.[53] Nevertheless, it would seem to be highly significant that over the long run since 1950, Soviet perceptions of the US were independent of their perceptions of the Chinese.

2. Chinese National Attributes

(U) The statistics and correlations for 30 Chinese attribute and perception variables are given in Tables 12 and 13. The Chinese had no ICBMs deployed at any time during the eighteen year period; consequently, this variable has been deleted from this section of the study.

(U) Distributions for a few of the measures, such as, "aid to less developed countries," "defense budget," "armed forces" and "submarines," in addition to two Soviet perception variables are skewed.

(U) A scanning of the correlation coefficients revealed that the Chinese did not exhibit the same balanced and stable pattern of industrialization found for the Soviets. The measures of economic growth for the Chinese appear to have relatively varied patterns across time.

a. Sixteen Chinese Attributes

(U) As was the case in the analysis of the Soviet attributes, we ran two separate factor analyses with the sixteen " physical measures taken first. The positive eigenvalues presented in Table 14 indicate that either a two factor (accounting for 76 percent of the variance) or a three factor solution (accounting for almost 85 percent of the variance) best explain the dynamic of Chinese attributes. The two and three factor solutions are presented in Tables 15 and 16. The three factor solution was finally rejected because the additional nine percent of variance added by the third factor decomposed the simple structured pattern of industrialization found in the two-factor solution. The two factor structure is more readily comparable to the Soviet patterns and so is interpreted here.

[53] Holsti's work on Sino-Soviet behavior during periods of high crisis, for example, would indicate that it does not. See Holsti, "External Conflict," op. cit.

TABLE 12

16 CHINESE NATIONAL ATTRIBUTES AND 14 PERCEPTION VARIABLES 1950 - 1967

STATISTICS

VARIABLE NO.	NAME	MEAN	SE	ST DEV	SE	SKEW	KURTOSIS
1	CEAIDLOC	59.444	19.652	83.375	42917.320	2.454**	0.399
2	CPR GNP	68.278	3.773	16.006	1581.774	-0.733	0.130
3	CPR EXPT	1548.500	112.982	479.343	1418586.000	-0.593	0.117
4	CPR IMPT	1439.000	106.193	450.537	1253212.000	-0.104	0.129
5	CIMP/GNP	20.611	0.677	2.870	50.861	0.551	0.202
6	CEXP/GNP	22.107	0.557	2.363	34.474	-0.691	0.136
7	CENY CON	127280.000	18639.363	79080.125	38609863136.000	-0.256	0.079
8	CAGR PRO	173269.437	3950.911	16762.297	1734723072.000	-0.848	0.188
9	CSTL PRO	5869.867	779.697	3307.974	67559600.000	-0.437	0.093
10	CPR POPN	650551.625	16469.398	69873.750	30143340544.000	0.125	0.102
11	CDEF BUD	5683.332	221.003	937.636	5427893.000	-1.578**	0.334
12	CDEF/GNP	5.833	0.307	1.302	10.461	0.910	0.166
13	CFGT AID	1292.722	136.175	586.229	2121763.000	-0.494	0.151
14	CARM FOR	3163.444	187.535	795.642	3908394.000	1.568**	0.173
15	CPR SUBS	0.167	0.088	0.373	0.857	2.131**	0.233
16	CPR FRGT	66.056	5.273	22.394	3096.235	-0.850	0.143
17	CC ST US	3864.833	104.806	444.654	1220696.000	0.257	0.093
18	CC WK US	440.889	27.847	118.146	86179.375	0.112	0.131
19	CC AC US	3874.667	113.402	481.125	1429151.000	0.160	0.148
20	CC PA US	698.222	42.783	181.511	203408.250	0.266	0.151
21	CC PO US	1235.778	85.857	364.261	819197.875	-0.477	0.173
22	CC NG US	2791.111	143.257	607.786	2280683.000	-0.052	0.125
23	CC TP US	42553.664	3279.436	13913.469	1195101824.000	0.129	0.096
24	CC ST SU	3769.611	76.936	326.411	657797.125	0.100	0.139
25	CC WK SU	281.833	32.885	139.520	120180.312	0.764	0.125
26	CC AC SU	2998.278	84.150	357.018	786945.125	-0.590	0.125
27	CC PA SU	817.389	35.061	148.753	136614.375	-0.335	0.104
28	CC PO SU	3064.500	188.459	799.564	3947018.000	-0.799	0.160
29	CC NG SU	990.944	157.183	666.873	2745672.000	1.525**	0.185
30	CC TP SU	11299.441	1833.817	7780.227	373721088.000	1.546**	0.204

SE - SKEW = 0.536
SE - KURTOSIS = 1.039

* SIGNIFICANT AT .05 LEVEL
** SIGNIFICANT AT .01 LEVEL

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TABLE 13

16 CHINESE NATIONAL ATTRIBUTES AND 14 PERCEPTION VARIABLES 1950 - 1967

CORRELATIONS

NO.	VARIABLE	1 CEAIDLOC	2 CPR GNP	3 CPR EXPT	4 CPR IMPT	5 CIMP/GNP	6 CEXP/GNP	7 CENY CON	8 CAGR PRO	9 CSTL PRO	10 CPR POPN	11 CDEF BUD	12 CDEF/GNP
1	CEAIDLOC	1.0000											
2	CPR GNP	0.4698	1.0000										
3	CPR EXPT	0.4035	0.9844	1.0000									
4	CPR IMPT	0.2797	0.9272	0.9289	1.0000								
5	CIMP/GNP	-0.1244	0.4619	0.4814	0.7351	1.0000							
6	CEXP/GNP	0.2455	0.8507	0.9201	0.8054	0.4191	1.0000						
7	CENY CON	0.6220	0.6338	0.8306	0.6822	0.1618	0.7479	1.0000					
8	CAGR PRO	0.1389	0.6390	0.6263	0.6081	0.4545	0.6336	0.3736	1.0000				
9	CSTL PRO	0.5253	0.8533	0.8391	0.7486	0.2521	0.7030	0.9279	0.3432	1.0000			
10	CPR POPN	0.5826	0.6357	0.8419	0.7591	0.3160	0.7663	0.9481	0.4842	0.9080	1.0000		
11	CDEF BUD	0.2702	0.6148	0.6153	0.6508	0.6128	0.5955	0.6240	0.6121	0.5571	0.6831	1.0000	
12	CDEF/GNP	-0.2251 1	-0.3684 2	-0.3401 3	-0.0931 4	0.3990 5	-0.3161 6	-0.2770 7	-0.1440 8	-0.2648 9	-0.0733 10	0.2162 11	1.0000 12
13	CFGT AIR	0.4639	0.8448	0.8544	0.7787	0.3925	0.8209	0.8917	0.6770	0.8109	0.9468	0.7629	-0.0695
14	CARM FOR	-0.4704	-0.8668	-0.8597	-0.7535	-0.3570	-0.7900	0.7549	-0.7132	-0.7058	-0.7737	-0.7289	0.2991
15	CPR SUBS	0.1871	0.4486	0.4694	0.5701	0.3722	0.4101	0.4772	0.2418	0.5358	0.6655	0.3895	0.4008
16	CPR TRET	0.5549	0.5968	0.5334	0.3352	-0.1362	0.4502	0.5224	0.4270	0.4887	0.3666	0.3027	-0.7334
17	CC ST US	-0.1089	-0.0595	-0.0880	-0.2133	-0.3208	0.0047	0.1794	0.0493	0.0324	0.0138	0.2051	-0.1936
18	CC WK US	-0.0147	-0.1793	-0.1099	-0.1372	0.0369	-0.2001	-0.2793	-0.0169	-0.2305	-0.2235	-0.1472	0.1075
19	CC AC US	-0.1041	0.0945	0.0473	0.0531	0.1123	0.0060	0.0827	0.1245	-0.0699	-0.0826	0.3463	-0.1940
20	CC PA US	0.1045	-0.1617	-0.1063	-0.0432	0.0448	-0.0672	-0.1189	-0.3324	-0.1881	-0.0304	-0.3101	0.3298
21	CC PO US	0.5507	0.5432	0.5135	0.3806	-0.0874	0.3992	0.4993	0.2934	0.5725	0.4843	0.0933	-0.4124
22	CC NG US	-0.2796	-0.6543	-0.6799	-0.6515	-0.4307	-0.6554	-0.3600	-0.6088	-0.3458	-0.4388	-0.4133	0.2020
23	CC TP US	-0.2377	-0.3537	-0.4000	-0.4362	-0.3378	-0.3786	-0.0798	-0.2799	-0.1723	-0.2556	-0.0356	-0.0302
24	CC ST SU	-0.2488	-0.2029	-0.1920	-0.3167	-0.3446	-0.0919	-0.1185	-0.1750	-0.2223	-0.3070	-0.2423	-0.3278

TABLE 13 -cont'd-

16 CHINESE NATIONAL ATTRIBUTES AND 14 PERCEPTION VARIABLES 1950 - 1967

CORRELATIONS

NO.	VARIABLE	1 CEXIDLOC	2 CPR GNP	3 CPR EXPT	4 CPR IMPT	5 CIMP/GNP	6 CEXP/GNP	7 CENY CON	8 CAGR PRO	9 CSTL PRO	10 CPR POPN	11 CDEF BUD	12 CDEF/GNP
25	CC HK SU	0.6144	0.4860	0.4998	0.5063	0.2806	0.4790	0.5739	0.3480	0.5118	0.7463	0.5146	0.2605
26	CC AC SU	0.4870	0.8193	0.8312	0.8064	0.5370	0.8103	0.7212	0.7297	0.6719	0.8015	0.7764	-0.0440
27	CC PA SU	0.3041	0.2630	0.2885	0.2937	0.2060	0.2590	0.2054	0.2110	0.2494	0.3762	0.1977	0.0899
28	CC PO SU	-0.4879	-0.5826	-0.6255	-0.6231	-0.3279	-0.6094	-0.6242	-0.3060	-0.6417	-0.7946	-0.4263	-0.1860
29	CC NG SU	0.5377	0.4483	0.4617	0.4737	0.2186	0.4241	0.6180	0.2322	0.5984	0.7833	0.4509	0.2809
30	CC TP SU	0.5767	0.4957	0.5141	0.5079	0.2692	0.4892	0.6754	0.3051	0.6281	0.8308	0.5323	0.2630

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TABLE 13 -cont'd-

16 CHINESE NATIONAL ATTRIBUTES AND 14 PERCEPTION VARIABLES 1953 - 1967

CORRELATIONS

		13	14	15	16	17	18	19	20	21	22	23	24
NO.	VARIABLE	CFGT AIR	CARM FOR	CPR SUBS	CPR TRET	CC ST US	CC WK US	CC AC US	CC PA US	CC PO US	CC NG US	CC TP US	CC ST SU
13	CFGT AIR	1.0000											
14	CARM FOR	-0.8126	1.0000										
15	CPR SUBS	0.6207	-0.3236	1.0000									
16	CPR TRET	0.3905	-0.6389	-0.1409	1.0000								
17	CC ST US	0.0968	0.0074	-0.2587	0.2624	1.0000							
18	CC WK US	-0.2603	0.2210	-0.2910	-0.2248	-0.1222	1.0000						
19	CC AC US	0.0532	-0.1874	-0.2866	0.3809	0.5293	-0.3188	1.0000					
20	CC PA US	-0.1439	0.2839	0.1218	-0.5299	-0.3145	0.3523	-0.5088	1.0000				
21	CC PO US	0.4470	-0.4177	0.2327	0.4252	-0.2004	-0.1126	-0.4041	-0.0099	1.0000			
22	CC NG US	-0.5098	0.7358	-0.3086	-0.4406	0.4627	0.1144	-0.0444	0.1842	-0.1964	1.0000		
23	CC TP US	-0.2117	0.3723	-0.3731	-0.0194	0.8555	-0.1083	0.5246	-0.2264	-0.2935	0.7742	1.0000	
24	CC ST SU	-0.2314	0.2059	-0.5959	-0.0170	0.4846	0.4084	0.1880	0.0944	-0.0854	0.3661	0.4784	1.0000
		13	14	15	16	17	18	19	20	21	22	23	24
25	CC WK SU	0.6579	-0.5205	0.7271	0.1471	-0.2367	-0.0931	-0.2667	0.2216	0.2221	-0.4550	-0.4787	-0.6431
26	CC AC SU	0.8638	-0.8589	0.5020	0.4835	-0.0923	-0.0523	0.0792	-0.1031	0.3492	-0.7097	-0.4244	-0.2517
27	CC PA SU	0.2740	-0.2939	0.4007	-0.0028	-0.4967	-0.2045	-0.4045	0.0638	0.2831	-0.3870	-0.5822	-0.7754
28	CC PO SU	-0.6784	0.5083	-0.8068	-0.0782	0.3534	0.0547	0.4343	-0.2616	-0.3033	0.5063	0.5983	0.5815
29	CC NG SU	0.6622	-0.3881	0.8166	0.0021	-0.1808	-0.1530	-0.3595	0.2410	0.3451	-0.2106	-0.3210	-0.5939
30	CC TP SU	0.7244	-0.4577	0.7386	0.0356	-0.1427	-0.0979	-0.3291	0.2542	0.3468	-0.2300	-0.3025	-0.5260

TABLE 13 - cont'd-

16 CHINESE NATIONAL ATTRIBUTES AND 14 PERCEPTION VARIABLES 1950 - 1967

CORRELATIONS

		13	14	15	16	17	18	19	20	21	22	23	24
NO.	VARIABLE	CFGT AIR	CARM FOR	CPR SUBS	CPR TRET	CC ST US	CC WK US	CC AC US	CC PA US	CC PO US	CC NG US	CC TP US	CC ST SU
13	CFGT AIR	1.0000											
14	CARM FOR	-0.8126	1.0000										
15	CPR SUBS	0.6207	-0.3236	1.0000									
16	CPR TRET	0.3905	-0.6389	-0.1409	1.0000								
17	CC ST US	0.0988	0.0074	-0.2587	0.2624	1.0000							
18	CC WK US	-0.2603	0.2210	-0.2910	-0.2248	-0.1222	1.0000						
19	CC AC US	0.0532	-0.1874	-0.2866	0.3809	0.5293	-0.3188	1.0000					
20	CC PA US	-0.1439	0.2839	0.1218	-0.5299	-0.3145	0.3523	-0.5088	1.0000				
21	CC PO US	0.4470	-0.4177	0.2327	0.4252	-0.2004	-0.1126	-0.4041	-0.0099	1.0000			
22	CC NG US	-0.5098	0.7358	-0.3086	-0.4406	0.4627	0.1144	-0.0444	0.1842	-0.1964	1.0000		
23	CC TP US	-0.2117	0.3723	-0.3731	-0.0194	0.8555	-0.1083	0.5246	-0.2264	-0.2935	0.7742	1.0000	
24	CC ST SU	-0.2314	0.2059	-0.5959	-0.0170	0.4846	0.4084	0.1880	0.0944	-0.0854	0.3661	0.4784	1.0000
		13	14	15	16	17	18	19	20	21	22	23	24
25	CC WK SU	0.0579	-0.5205	0.7271	0.1471	-0.2367	-0.0931	-0.2667	0.2216	0.2221	-0.4550	-0.4787	-0.6431
26	CC AC SU	0.8638	-0.8589	0.5020	0.4835	-0.0923	-0.0523	0.0792	-0.1031	0.3492	-0.7097	-0.4244	-0.2517
27	CC PA SU	0.2740	-0.2939	0.4007	-0.0028	-0.4967	-0.2045	-0.4045	0.0638	0.2831	-0.3870	-0.5822	-0.7754
28	CC PO SU	-0.6784	0.5083	-0.8068	-0.0782	0.3534	0.0547	0.4343	-0.2616	-0.3033	0.5063	0.5983	0.5815
29	CC NG SU	0.5622	-0.3881	0.8166	0.0021	-0.1808	-0.1530	-0.3595	0.2410	0.3451	-0.2106	-0.3210	-0.5939
30.	CC TP SU	0.7244	-0.4577	0.7386	0.0356	-0.1427	-0.0979	-0.3291	0.2542	0.3468	-0.2300	-0.3025	-0.5260

TABLE 13 - cont'd -

16 CHINESE NATIONAL ATTRIBUTES AND 14 PERCEPTION VARIABLES 1950 - 1967

CORRELATIONS

NO.	VARIABLE	25 CC WK SU	26 CC AC SU	27 CC PA SU	28 CC PO SU	29 CC NG SU	30 CC TP SU
25	CC WK SU	1.0000					
26	CC AC SU	0.6796	1.0000				
27	CC PA SU	0.6184	0.1984	1.0000			
28	CC PO SU	-0.9229	-0.6650	-0.6115	1.0000		
29	CC NG SU	0.9145	0.5404	0.6045	-0.8977	1.0000	
30	CC TP SU	0.9160	0.6125	0.5856	-0.8868	0.9804	1.0000

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TABLE 14

16 Chinese Attributes
TABLE OF POSITIVE EIGENVALUES

NO.	EIGENVALUE	PERCENT OF COMMUNALITY ALL (16) FACTORS Each	Cumulative
1	9.693	60.6	60.6
2	2.476	15.5	76.1
3	1.417	8.9	84.9
4	0.815	5.1	90.0
5	0.539	3.4	93.4
6	0.415	2.6	96.0
7	0.237	1.5	97.5
8	0.164	1.0	98.5
9	0.125	0.8	99.3
10	0.055	0.3	99.6
11	0.030	0.2	99.8
12	0.022	0.1	99.9
13	0.007	0.0	100.0
14	0.003	0.0	100.0
15	0.001	0.0	100.0
16	0.000	0.0	100.0

TRACE OF ORIGINAL MATRIX = 16.000
COMMUNALITY OVER 16 FACTORS = 16.000

TABLE 15

Two Factor Solution

16 CHINESE NATIONAL ATTRIBUTES

ROTATED FACTOR MATRIX

	FACTOR NUMBER	1 *	2 **
	SUM SQUARES OVER VARIABLES	5.166	3.003
	PERCENT OF TOTAL VARIANCE	57.287	18.770
VARIABLE NO.	NAME / COMMUNALITY 2 FACTORS		
1	CEAIDLOC	0.426	0.380	-0.531
2	CPR GNP	0.936	0.902	-0.351
3	CPR EXPT	0.928	0.915	-0.301
4	CPR IMPT	0.859	0.927	-0.008
5	CIMP/GNP	0.690	0.632	-0.539
6	CEXP/GNP	0.773	0.843	-0.249
7	CENY CON	0.834	0.819	-0.405
8	CAGR PRO	0.457	0.765	-0.096
9	CSTL PRO	0.784	0.618	-0.339
10	CPR POPN	0.864	0.911	-0.188
11	CDEF BUD	0.671	0.811	0.118
12	CDEF/GNP	0.823	0.018	0.907
13	CFGT AIR	0.900	0.938	-0.142
14	CARM FOR	0.829	-0.833	0.367
15	CPR SUBS	0.580	0.665	0.371
16	CPR TRET	0.616	0.337	-0.830

Factor Names:

* Industrialization

** Portion of Chinese GNP Allocated to Defense

TABLE 16

Three Factor Solution

16 CHINESE NATIONAL ATTRIBUTES

ROTATED FACTOR MATRIX

FACTOR NUMBER	1	2	3
SUM OF SQUARES OVER VARIABLES	5.752	2.518	5.316
PERCENT OF TOTAL VARIANCE	35.952	15.737	33.227

VARIABLE NO.	NAME	COMMUNALITY 3 FACTORS			
1	GEAIDLOC	0.663	-0.074	-0.291	-0.757
2	GPR GNP	0.947	0.718	-0.267	-0.509
3	GPR EXPT	0.941	0.743	-0.224	-0.582
4	GPR IMPT	0.898	0.825	0.033	-0.454
5	GIMP/GNP	0.841	0.902	0.440	0.044
6	GEXP/GNP	0.812	0.744	-0.210	-0.442
7	GPOP GDN	0.944	0.380	-0.180	-0.874
8	GAGR 333	0.721	0.824	-0.192	-0.078
9	GSTL PRD	0.973	0.408	-0.129	-0.831
10	GPR PAPN	0.975	0.480	0.034	-0.867
11	GDEF GNP	0.585	0.719	0.157	-0.380
12	GDEF/GNP	0.891	-0.024	0.939	0.102
13	GEGT AID	0.915	0.638	0.007	-0.713
14	GARM FOR	0.860	-0.709	0.314	-0.512
15	GPR SUBS	0.780	0.293	0.560	-0.609
16	GPR TEET	0.952	0.268	0.712	-0.348

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(U) The first factor in the two-factor solution, Industrialization, although weaker than the comparable Soviet pattern, still accounts for 57 percent of total variance. This p tern, shown in Figure 11 however, does not exhibit as strong a pattern of growth in industrialization as the comparable Soviet pattern. Interestingly the variable "Chinese armed forces" loaded negatively on this factor and, as in the Soviet pattern, it is inversely related to industrialization. A further analysis of the pattern reveals a positive growth rate in Chinese industrialization until 1959--that is, until the effect of the economic chaos caused by Great Leap policies became pervasive. The steady growth rate until this time, due in part to the consolidation efforts of the new Communist regime in the early fifties and later to their successful implementation of the first five-year plan, corresponds closely to the periodization of Chinese economic growth presented by most economists who have dealt with China.[54] The decline in the growth of industrialization continued after 1959 until the 1961-1962 period when it leveled off and began a rapidly increasing rise lasting until at least 1967. This again corresponds closely to the economists' periodization called "recovery and readjustment."[55] Noteworthy is the fact that through at least the end of 1967, there was no indication of any adverse affect on China's overall industrialization drive resulting from the disruption caused by the Great Cultural Revolution. This result is contrary to much that has been written. It may be, however, that just as the effect of Great Leap policies introduced in late 1957 and early 1958 had no noticeable effect until 1959 so, too, the effects of the Cultural Revolution may have no noticeable effect on industrialization rates until 1968 or 1969. That is, there may be a one or two year lag between new policies, political disorder, and reorganization and the observable effects on China's industrialization.

(U) The second pattern which we characterized as the Portion of Chinese GNP Allocated to Defense shows a slow decline through 1964 followed by a sharp upswing. (See Figure 12). It accounts for almost nineteen percent of the variance. Of interest on this factor is the negative correlation of "treaties signed" which shows a general increase to 1964 and then falls sharply after that. If "total number of treaties signed by the Chinese" taps Chinese involvement with and willingness to participate in the international system then, since 1964 Peking has exhibited a strong isolationist and withdrawal behavior. Moreover, coinciding with this withdrawal has been ever increasing military expenditures. Such behavior

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[54] See, for example, Arthur Ashbrook, "Main Lines of Chinese Economic Policy," in An Economic Profile of Mainland China, Washington: GPO 1967; T. C. Lin and K. C. Yeh, The Economy of the Chinese Mainland, 1933-1959, Princeton: Princeton University Press, 1965, and Alexander Eckstein, Communist China's Economic Growth and Foreign Trade, New York: McGraw-Hill, 1967.

[55] Ibid.

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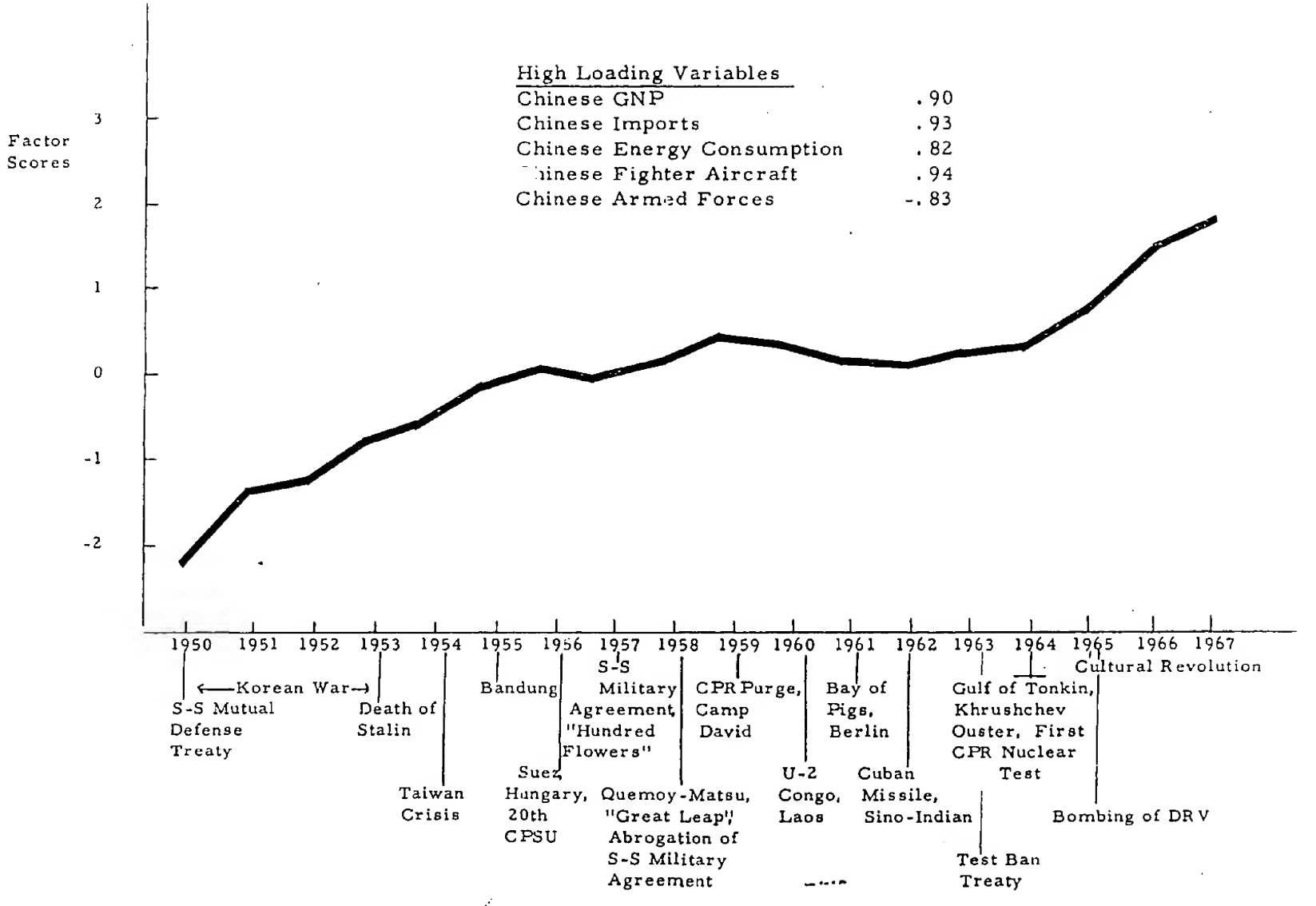

FIGURE 11

SIXTEEN CHINESE ATTRIBUTES: FACTOR 1
CHINESE INDUSTRIALIZATION

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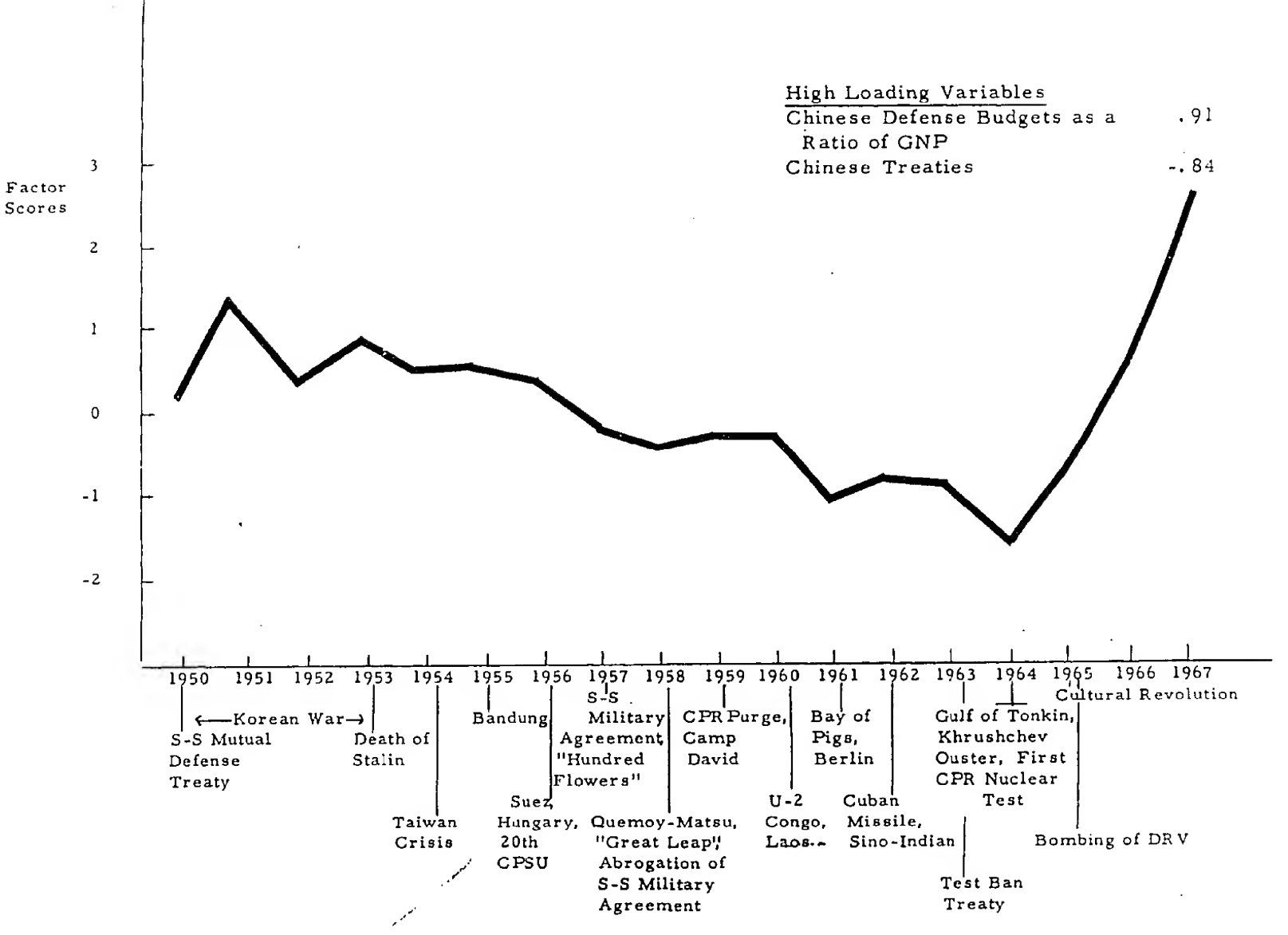

FIGURE 12

SIXTEEN CHINESE ATTRIBUTES: FACTOR 2
PORTION OF CHINESE GNP ALLOCATED TO DEFENSE

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supports the view that a precursor to the Cultural Revolution was the attempted consolidation of power at home by use of external threats, primarily from the US and the Soviet Union, to China's continued existence. That is, the attempt to consolidate control at home was justified by the increasing threat from the international system which in turn justified greater military expenditures.

b. Thirty Chinese Attributes

(U) When the perception variables are added to the analysis, it is no longer possible to maintain the highly parsimoneous solutions we had before. The positive eigenvalues of Table 17 suggest a pattern of five factors which explain almost eighty-five percent of the total variance. The five factor solution is shown in Table 18. The plot of scores for these factors are present in Figures 13 through 17.

(U) The first pattern in this analysis is again the familiar Industrialization factor which accounts for 31.5% of the total variance. In addition to the high loading variables previously noted on this factor, we have in this analysis two new variables loading highly: "Chinese fighter aircraft" and "Chinese perception of the Soviets as more active." Although these additional loadings make for a slightly more erratic growth pattern, one which peaks in 1959 and then drops off until 1963, it still has the same basic characteristics as its counterpart in the previous analysis. The second and fifth patterns are quite erratic and are primarily defined by changing Chinese perceptions of the US; the second being defined by changing Chinese perceptions of the US as a threat and as strong, and the fifth by Chinese perceptions of the US as weak and passive. The fourth pattern is quite similar to factor two in the previous analysis. The major difference between the two being the inclusion of a new variable, "Chinese perceptions of the US as positive," on the dimension. The new loading would seem to add additional support to our previous interpretation of the pattern. In this case, the more the Chinese perceived the US positively, the more they participated in the international system (as measured by treaties signed) and the less they increased their military expenditures. On the other hand, the less positively they perceived the US, the less they participated in interstate negotiations and the more they increased their own military expenditures.

(U) Perhaps the most interesting of these patterns is factor three "Chinese Perception of Soviets as Paper Tiger, in which the Chinese perceive the Soviets in weak, negative, and threatening terms. The loadings here are quite consistent with the year 1959 being the break point where the Chinese perceptions of the Soviets are reversed (See Figure 15). A comparison of this pattern with the second factor of the Soviet 31 variable analysis, the Soviet Nuclear Transition and Perception of China as a Paper Tiger (Figure 9), reveals that although the turning point in

TABLE 17

30 Chinese Attributes

TABLE OF POSITIVE EIGENVALUES

NO.	EIGENVALUE	PERCENT OF COMMUNALITY ALL (18) FACTORS Each	Cumulative
1	13.862	46.0	46.0
2	4.774	15.9	61.9
3	2.574	8.6	70.5
4	2.504	8.3	78.8
5	1.801	6.0	84.8
6	1.147	3.8	88.7
7	0.783	2.6	91.3
8	0.685	2.3	93.6
9	0.521	1.7	95.3
10	0.471	1.6	96.9
11	0.356	1.2	98.1
12	0.194	0.6	98.7
13	0.135	0.4	99.2
14	0.122	0.4	99.6
15	0.085	0.3	99.8
16	0.029	0.1	99.9
17	0.019	0.1	100.0
18	0.000	0.0	100.0

TRACE OF ORIGINAL MATRIX = 30.000
COMMUNALITY OVER 18 FACTORS = 30.000

TABLE 18

16 CHINESE NATIONAL ATTRIBUTES AND 14 PERCEPTION VARIABLES 1950 - 1967

ROTATED FACTOR MATRIX

FACTOR NUMBER	1*	2 **	3 ***	4 ****	5 *****
SUM SQUARES OVER VARIABLES	9.467	3.508	6.879	3.328	2.273
PERCENT OF TOTAL VARIANCE	31.558	11.692	22.930	11.092	7.575

VARIABLE NO.	NAME	COMMUNALITY 5 FACTORS					
1	CEAIDLOG	0.647	0.187	0.062	-0.494	[-0.603]	0.006
2	CPR GNP	0.942	[0.867]	0.077	-0.251	-0.342	-0.060
3	CPR EXPT	0.945	[0.880]	0.104	-0.262	-0.301	-0.015
4	CPR IMPT	0.881	[0.879]	0.183	-0.275	-0.016	0.014
5	CIMP/GNP	0.839	[0.660]	0.236	-0.083	[0.582]	0.051
6	CEXP/GNP	0.819	[0.845]	0.065	-0.223	-0.227	0.021
7	CENY CON	0.946	[0.636]	-0.245	[-0.539]	-0.432	-0.076
8	CAGR PRO	0.634	[0.770]	0.124	-0.005	-0.001	-0.159
9	CSTL PRO	0.831	[0.619]	-0.108	[-0.510]	-0.417	-0.052
10	CPR POPN	0.975	[0.666]	-0.075	[-0.677]	-0.261	-0.016
11	COEF BUD	0.847	[0.753]	-0.204	-0.347	0.229	-0.256
12	COEF/GNP	0.884	-0.183	0.038	[-0.430]	[0.816]	0.154
13	CFGT AIR	0.937	[0.780]	-0.117	[-0.530]	-0.163	-0.087
14	CARM FOR	0.884	[-0.839]	-0.096	0.200	0.287	0.220
15	CPR SUBS	0.762	0.305	0.188	[-0.772]	0.193	-0.019
16	CPR TRET	0.871	0.456	-0.069	0.125	[-0.678]	-0.428
17	CC ST US	0.870	0.013	[-0.895]	0.089	-0.069	[-0.237]
18	CC WK US	0.615	-0.011	0.011	0.239	0.066	[0.742]
19	CC AC US	0.796	0.258	-0.473	0.362	0.163	[-0.590]
20	CC PA US	0.727	-0.211	0.127	-0.272	0.116	[0.761]
21	CC PO US	0.665	0.248	0.176	-0.249	[-0.702]	0.131
22	CC NG US	0.880	[-0.696]	[-0.598]	-0.015	0.100	0.167
23	CC TP US	0.960	-0.304	[-0.894]	0.146	0.070	-0.205
24	CC ST SU	0.933	-0.018	[-0.593]	[0.583]	-0.180	0.457
25	CC WK SU	0.969	0.340	0.256	[-0.829]	-0.018	-0.009
26	CC AC SU	0.891	[0.873]	0.087	-0.337	-0.082	-0.010
27	CC PA SU	0.753	0.043	[0.640]	[-0.542]	-0.069	-0.206
28	CC PO SU	0.928	-0.409	[-0.334]	[0.789]	0.065	-0.145
29	CC NG SU	0.967	0.227	0.118	[-0.947]	-0.046	0.046
30	CC TP SU	0.955	0.314	0.066	[-0.917]	-0.053	0.092

Factor Names:

* Chinese Industrialization and Perception of Soviets as Active

** Chinese View of US as Strong and a Threat

*** Chinese Perception of Soviets as a Paper Tiger

**** Chinese Defense Commitment

***** Chinese Perception of US as Weak and Active

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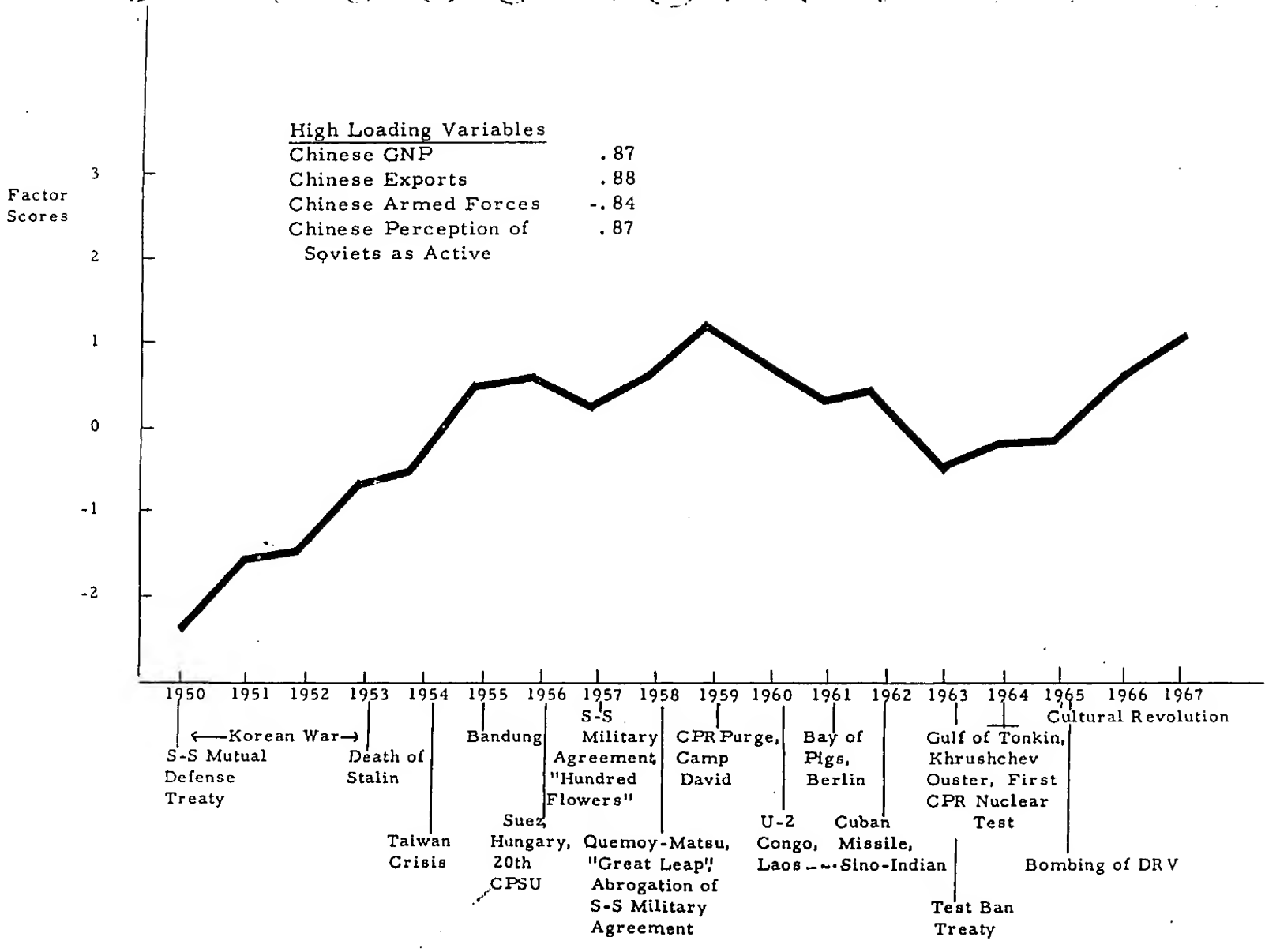

FIGURE 13

THIRTY CHINESE ATTRIBUTES: FACTOR 1
CHINESE INDUSTRIALIZATION AND PERCEPTION OF SOVIETS AS ACTIVE

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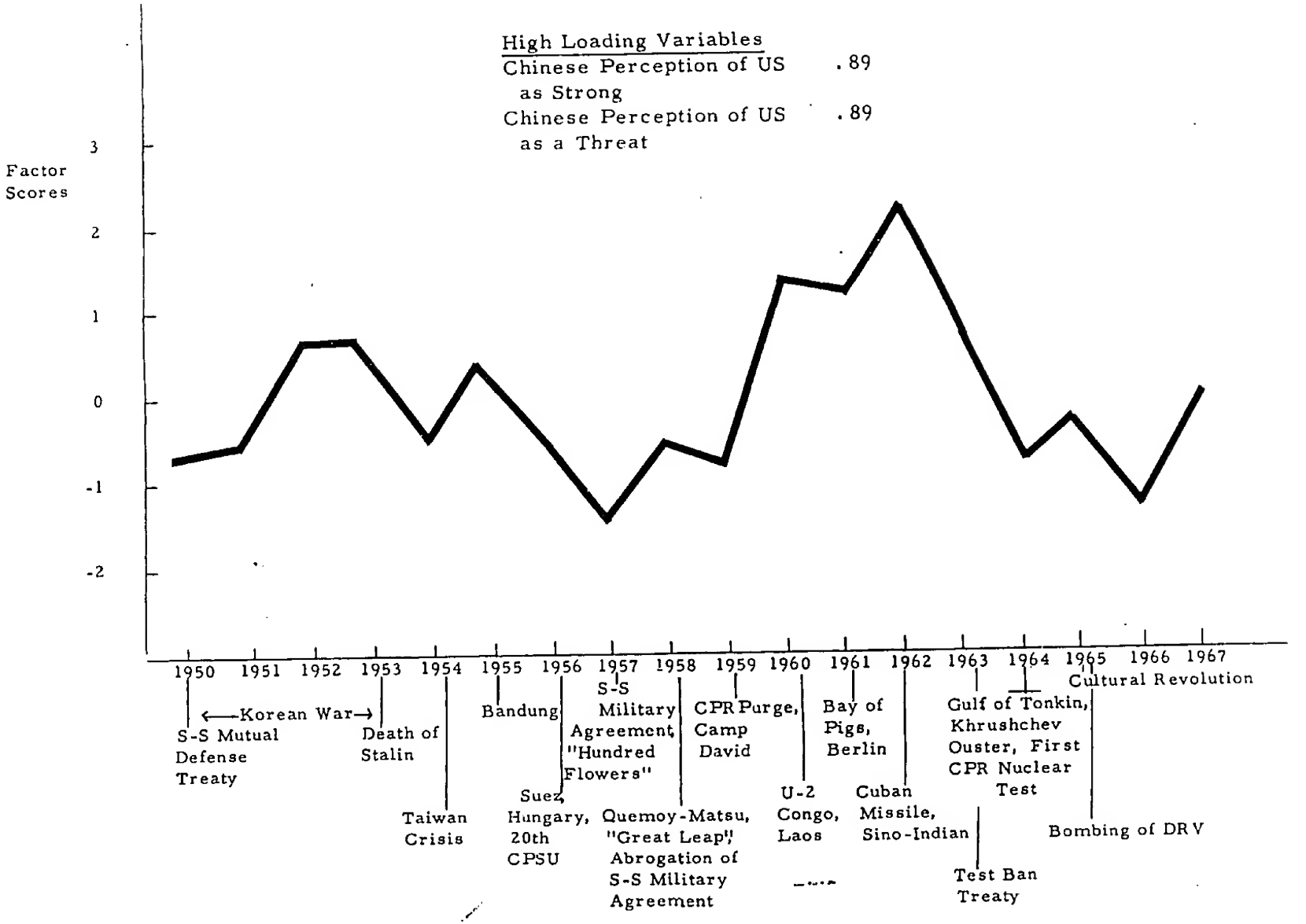

FIGURE 14

THIRTY CHINESE ATTRIBUTES: FACTOR 2
CHINESE VIEW OF US AS STRONG AND A THREAT

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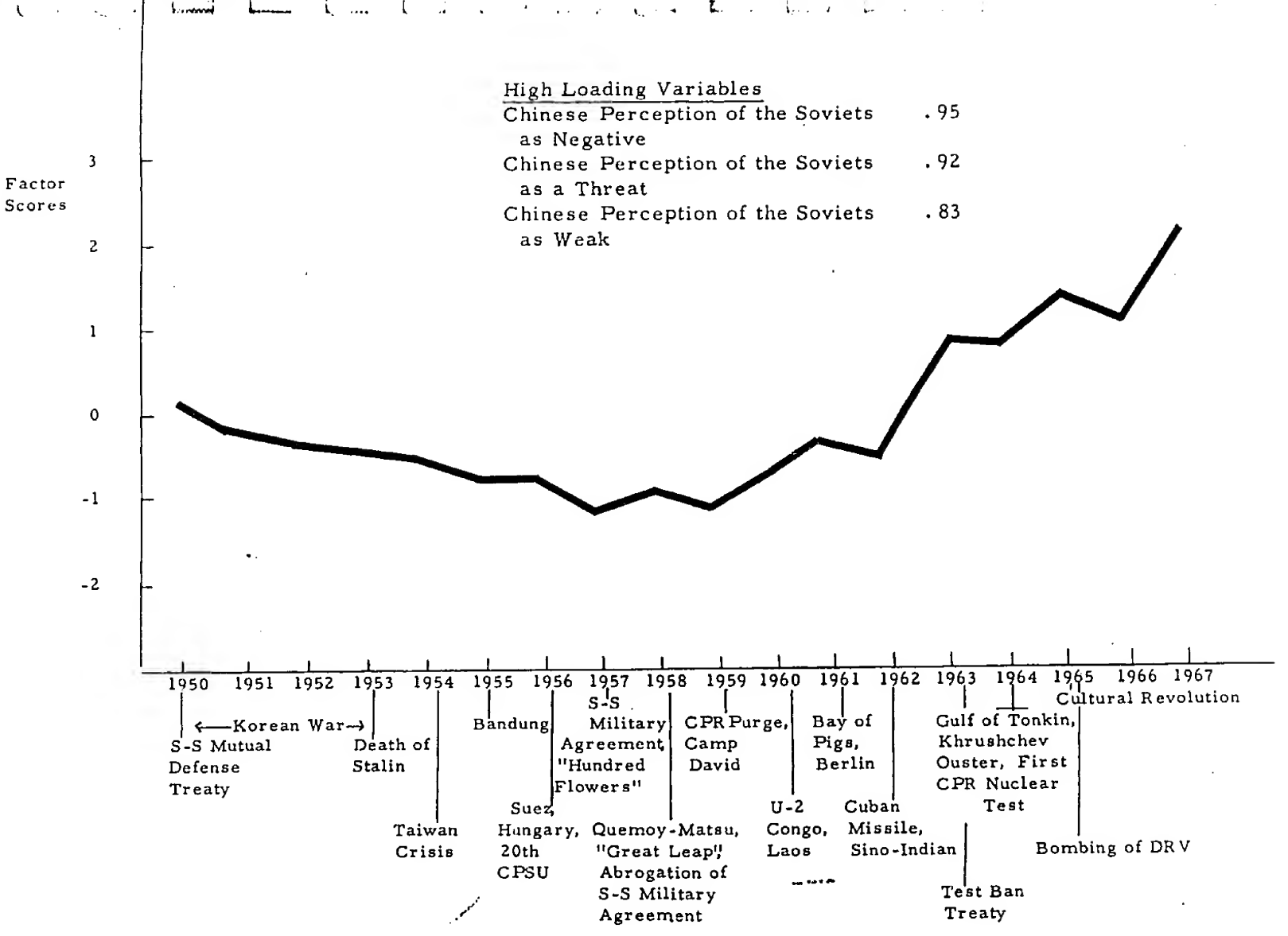

FIGURE 15

THIRTY CHINESE ATTRIBUTES: FACTOR 3
CHINESE PERCEPTION OF SOVIETS AS PAPER TIGER

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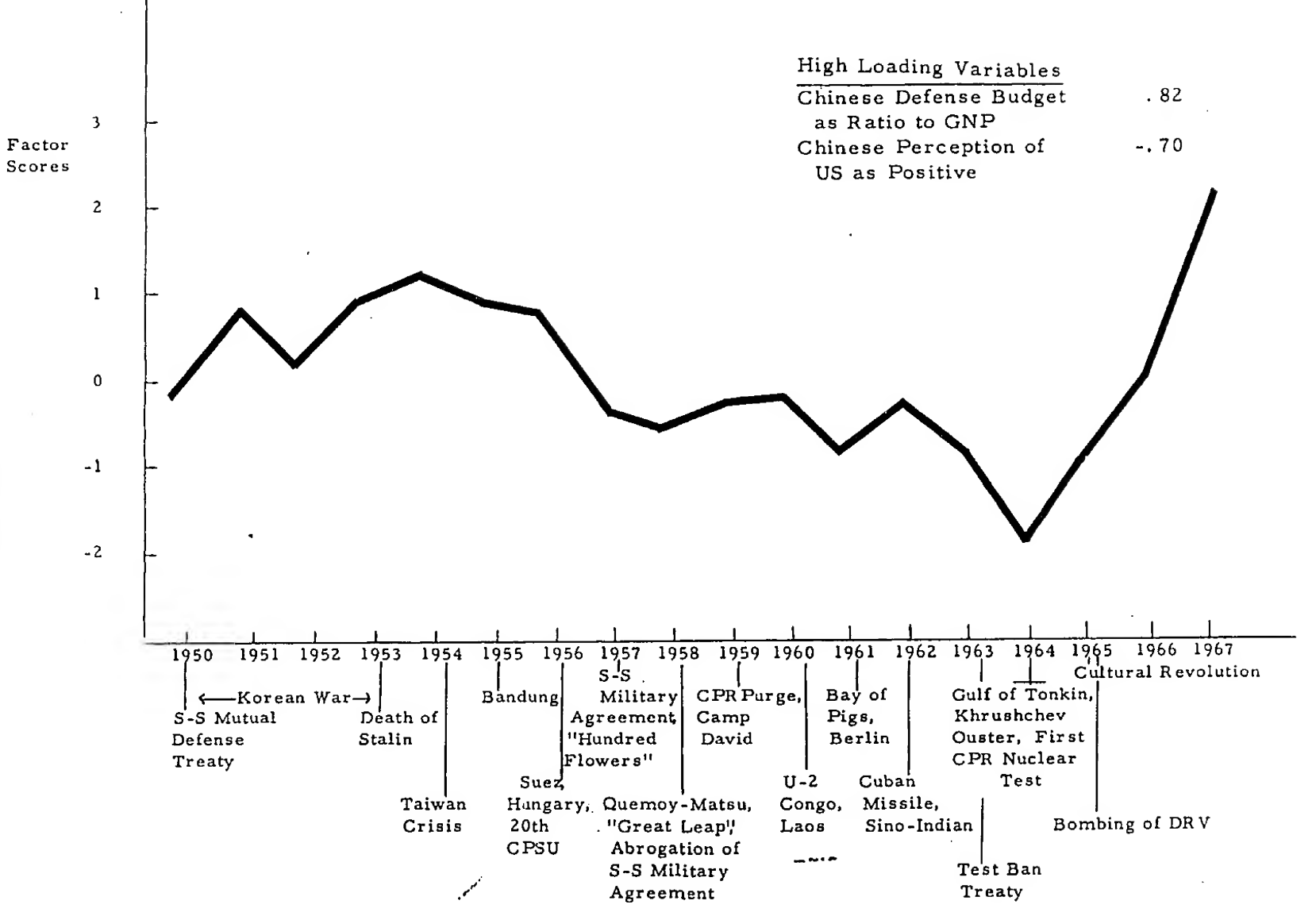

FIGURE 16

THIRTY CHINESE ATTRIBUTES: FACTOR 4
CHINESE DEFENSE COMMITMENT

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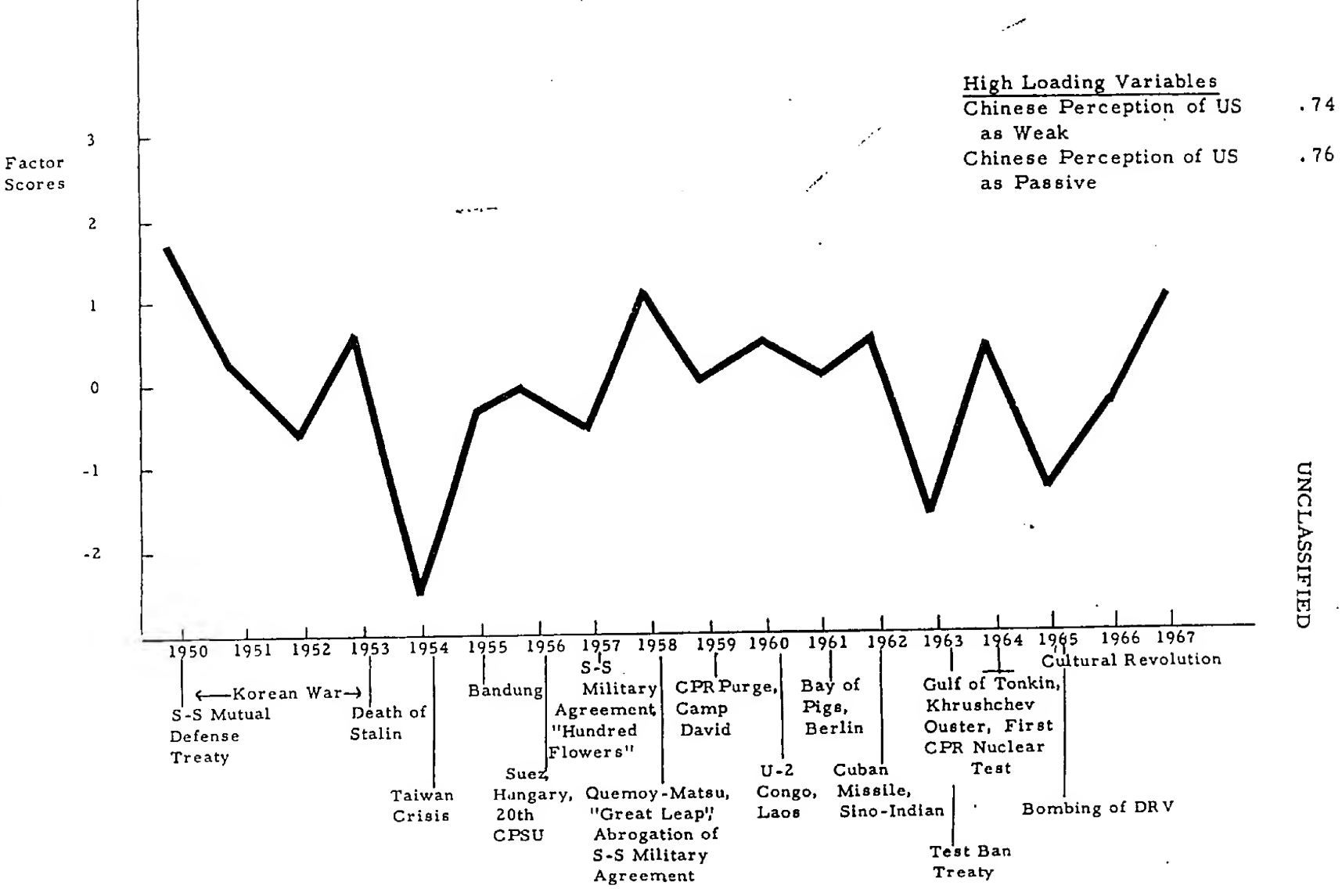

FIGURE 17

THIRTY CHINESE ATTRIBUTES - FACTOR 5:
CHINESE PERCEPTION OF US AS WEAK AND ACTIVE

Soviet threat perception of the Chinese occurred a year later in 1960, the overall correlation between these patterns is still in excess of .85. Although these patterns will merge later in the interaction analysis it is interesting to note that here the Chinese seem to have taken the initiative in the perception pattern.

(U) It should also be noted that Chinese views of the US were quite independent across time of Chinese views of the Soviet Union. Their perceptions of the Soviets for the most part loaded on different factors than did their perceptions of the US. The same phenomena was discovered about Soviet perceptions in the factor analysis of 31 Soviet attributes. The Soviet perceptions of China were quite independent across time of Chinese views of the US.

3. Soviet and Chinese Attribute Study - 36 Cases

(U) The attribute factor structures for the Soviets and Chinese have been shown to be quite different. This difference in the patterns of change in the Soviet Union and Communist China have been cited by several scholars as a definite influence impinging on their relations with each other. We are, therefore, interested in comparing the attributes of the Soviets with the attributes of the Chinese to discover whether differences will shed light on the two nations' interaction patterns between 1950 and 1967. A joint attribute analysis was therefore conducted to define those patterns of attribute variation common to both nations.

(U) We considered the two nations as cases for which data have been collected for a period of 18 years giving a sample size of 18 x 2 or 36 cases for each attribute variable. Thus, for example, we have the GNP of the Soviets in 1950 through 1967 followed by the Chinese GNP in 1950 through 1967:

Sino-Soviet 36 Case Matrix

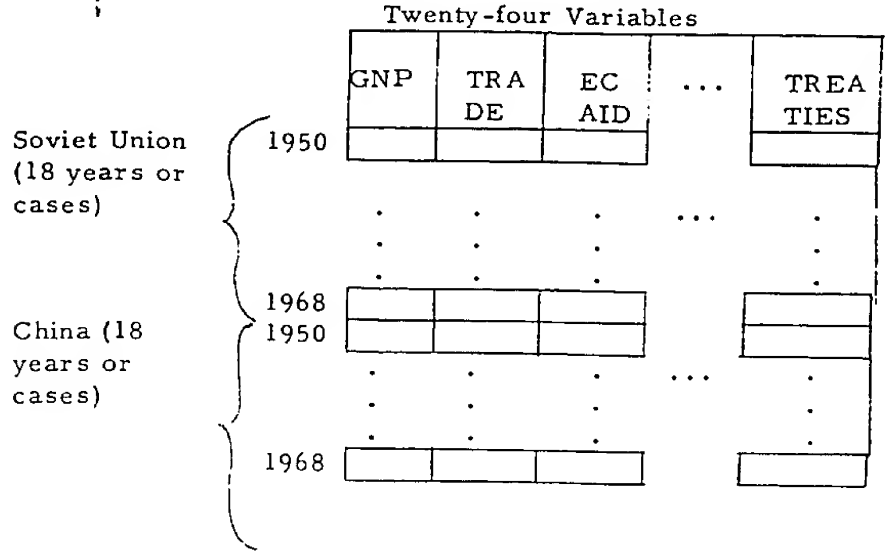

TABLE 19

17 SOVIET AND CHINESE NATIONAL ATTRIBUTES AND 7 US PERCEPTION VARIABLES — 36 CASES 1950 - 1967

STATISTICS

VARIABLE NO.	NAME	MEAN	SE	ST DEV	SE	SKEW	KURTOSIS
1	ECONAID	205.194	51.683	310.095	827511.562	2.060**	0.160
2	GNP	152.861	16.447	98.681	83800.875	0.655	0.055
3	EXPORTS	3397.194	413.313	2479.878	52922944.000	1.116**	0.077
4	IMPORTS	3181.361	391.075	2346.453	47381312.000	1.040**	0.070
5	IMPT/GNP	20.656	0.588	3.527	107.069	-0.237	-0.081
6	EXPT/GNP	21.305	0.539	3.234	90.015	-0.613	0.067
7	ENERGY	352606.187	45283.602	271401.625	633882083328.000	0.647	0.060
8	AGRICPRD	137823.562	6521.215	39127.329	13174779904.000	-0.000	0.041
9	STEEL PR	33479.514	5335.832	32019.008	9820445184.000	0.741	0.058
10	MILITN	429325.000	37843.801	227044.812	4436154777600.000	0.142	0.033
11	DEFNCBUD	10927.777	902.984	5417.906	25266794.000	0.096	0.035
12	DEFE/GNP	360.833	61.929	371.576	1189168.000	0.294	0.039
13	FIGHTERS	5204.691	753.552	4521.312	17591913.000	0.512	0.045
14	AIRFORCE	3723.333	185.530	1113.179	10663839.000	0.930*	0.065
15	SUBMARIN	11.833	3.985	23.909	4675.492	2.023**	0.141
16	ICBMS	52.778	24.258	145.547	1823011.500	3.736**	0.405
17	TREATIES	35.500	5.277	31.664	6625.961	0.437	0.045
18	STPO US	3340.389	72.733	436.397	1638861.000	-0.468	0.090
19	MEAN US	429.778	37.291	223.749	430828.625	2.169**	0.247
20	ACTV US	3906.472	82.080	492.479	2117799.000	1.160**	0.156
21	PASS US	894.167	48.561	291.364	730568.000	0.828*	0.077
22	PAST US	1473.528	72.777	436.662	1640870.000	0.311	0.091
23	NEG US	2583.000	86.452	518.709	2315430.000	0.241	0.085
24	TPER US	40765.250	2107.360	12644.160	1375825920.000	0.491	0.071

SE - SKEW = 0.393
SE - KURTOSIS = 0.769

* SIGNIFICANT AT .05 LEVEL
** SIGNIFICANT AT .01 LEVEL

17 SOVIET AND CHINESE NATIONAL ATTRIBUTES AND / OR PERCEPTION VARIABLES 36 CASES 1950 - 1967

CORRELATIONS

NO.	VARIABLE	1 ECONAID	2 GNP	3 EXPORTS	4 IMPORTS	5 IMPT/GNP	6 EXPT/GNP	7 ENERGY	8 AGRICPRO	9 STEEL PR	10 POPULTN	11 DEFNCBUD	12 DEFC/GNP
1	ECONAID	1.0000											
2	GNP	0.6822	1.0000										
3	EXPORTS	0.7077	0.9739	1.0000									
4	IMPORTS	0.7209	0.9715	0.9943	1.0000								
5	IMPT/GNP	0.3481	0.2520	0.4132	0.4485	1.0000							
6	EXPT/GNP	0.3347	0.2112	0.4031	0.3966	0.8041	1.0000						
7	ENERGY	0.7016	0.9894	0.9745	0.9682	0.2696	0.2713	1.0000					
8	AGRICPRO	-0.2670	-0.0573	-0.5129	-0.5192	0.3570	0.4568	-0.6147	1.0000				
9	STEEL PR	0.6812	0.9970	0.9759	0.9733	0.2481	0.2067	0.9870	-0.6690	1.0000			
10	POPULTN	-0.4023	-0.7968	-0.8606	-0.8641	0.2366	0.3649	-0.7373	0.9267	-0.7975	1.0000		
11	DEFNCBUD	0.5376	0.9372	0.8513	0.8488	0.0322	-0.0429	0.9134	-0.8148	0.9333	-0.9147	1.0000	
12	DEFC/GNP	0.2789	0.6965	0.5356	0.5333	-0.3538	-0.4318	0.6528	-0.9247	0.6902	-0.9466	0.8874	1.0000
		1	2	3	4	5	6	7	8	9	10	11	12
13	FIGHTERS	0.3472	0.6717	0.5098	0.5252	-0.2341	-0.3198	0.6422	-0.8173	0.6508	-0.8563	0.8212	0.8876
14	ARMEDPCP	-0.2093	0.0388	-0.0805	-0.0796	-0.6627	-0.8022	0.0147	-0.7101	0.1063	-0.6110	0.3576	0.6765
15	SUBMARIN	0.6190	0.8246	0.9125	0.8988	0.4947	0.4957	0.8285	-0.3028	0.8437	-0.4418	0.6401	0.2766
16	ICBMS	0.4295	0.6672	0.7505	0.7067	0.3530	0.3698	0.6804	-0.1627	0.6803	-0.3157	0.5052	0.1868
17	TREATIES	-0.2391	-0.0979	-0.0030	-0.0139	0.0856	0.2990	-0.0443	0.8477	-0.7161	0.8572	-0.8022	-0.8103
18	STRG US	0.0092	-0.0067	-0.0495	-0.0509	-0.1066	0.0107	-0.0197	0.0491	-0.0489	0.0551	-0.0265	-0.0293
19	WEAK US	-0.2347	-0.2381	-0.3388	-0.3234	-0.3027	-0.4179	-0.2508	0.0392	-0.2539	0.0091	-0.1106	0.0597
20	ACTV US	-0.0676	0.0111	-0.0035	-0.0000	-0.0048	-0.0568	-0.0003	-0.0866	0.0063	-0.0810	0.0937	0.1141
21	PASS US	0.1125	0.2350	0.1327	0.1413	-0.1864	-0.2812	0.2098	-0.3867	0.2179	-0.3653	0.2937	0.3618
22	POST US	0.6647	0.6315	0.6686	0.6727	0.2981	0.4237	0.6576	-0.2829	0.6268	-0.3297	0.4932	0.2702
23	NEG US	-0.3730	-0.3017	-0.3044	-0.3065	-0.2893	-0.3451	-0.3068	-0.0078	-0.2529	0.1160	-0.2626	-0.1602
24	TPER US	-0.2549	-0.2150	-0.2202	-0.2224	-0.2151	-0.2132	-0.2059	0.0026	-0.1887	0.0859	-0.1491	-0.0786

TABLE 20 cont'd-

17 SOVIET AND CHINESE NATIONAL ATTRIBUTES AND 7 US PERCEPTION VARIABLES 36 CASES 1950 - 1967

CORRELATIONS

NO.	VARIABLE	13 FIGHTERS	14 ARMFORCE	15 SUBMARIN	16 ICBMS	17 TREATIES	18 STRG US	19 WEAK US	20 ACTV US	21 PASS US	22 POST US	23 NEG US	24 TPER US
13	FIGHTERS	1.0000											
14	ARMFORCE	0.4742	1.0000										
15	SUBMARIN	0.1462	-0.1847	1.0000									
16	ICBMS	-0.0042	-0.1554	0.8886	1.0000								
17	TREATIES	-0.6605	-0.6223	-0.4853	-0.3682	1.0000							
18	STRG US	-0.0892	0.0039	0.0004	0.0490	0.1166	1.0000						
19	WEAK US	0.1470	0.2374	-0.4543	-0.3631	0.1160	-0.0749	1.0000					
20	ACTV US	0.0193	0.0940	-0.0008	-0.0203	0.0223	0.3875	-0.3344	1.0000				
21	PASS US	0.4619	0.3244	-0.0386	-0.1138	-0.3756	-0.5061	0.4134	-0.4803	1.0000			
22	POST US	0.3525	-0.2267	0.5679	0.3962	-0.2562	-0.0193	-0.3456	-0.2756	0.0624	1.0000		
23	NEG US	-0.3051	0.3261	-0.1134	-0.0765	-0.0479	0.3152	0.0418	0.0729	-0.0806	-0.3642	1.0000	
24	TPER US	-0.2180	0.2174	-0.0900	-0.0522	0.0516	0.7378	-0.1654	0.6193	-0.4571	-0.3273	0.7421	1.0000

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TABLE 21

Soviet and Chinese Attributes - 36 Cases

TABLE OF POSITIVE EIGENVALUES

NO.	EIGENVALUE	PERCENT OF COMMUNALITY ALL (24) FACTORS Each	Cumulative
1	10.807	45.0	45.0
2	5.130	21.4	66.4
3	2.983	12.4	78.8
4	1.267	5.3	84.1
5	0.951	4.0	88.1
6	0.765	3.2	91.3
7	0.583	2.4	93.7
8	0.410	1.7	95.4
9	0.342	1.4	96.8
10	0.242	1.0	97.8
11	0.166	0.7	98.5
12	0.110	0.5	99.0
13	0.077	0.3	99.3
14	0.059	0.2	99.5
15	0.041	0.2	99.7
16	0.034	0.1	99.9
17	0.019	0.1	99.9
18	0.007	0.0	100.0
19	0.005	0.0	100.0
20	0.002	0.0	100.0
21	0.001	0.0	100.0
22	0.001	0.0	100.0
23	0.000	0.0	100.0
24	0.000	0.0	100.0

TRACE OF ORIGINAL MATRIX = 24.000
COMMUNALITY OVER 24 FACTORS = 24.000

TABLE 22

17 SOVIET AND CHINESE NATIONAL ATTRIBUTES AND 7 US PERCEPTION VARIABLES — 36 CASES 1950 - 1967

ROTATED FACTOR MATRIX

FACTOR NUMBER		1 *	2 **	3***	4 ****
SUM SQUARES OVER VARIABLES		8.880	6.568	2.705	2.034
PERCENT OF TOTAL VARIANCE		37.002	27.365	11.272	8.473
VARIABLE NO.	NAME	COMMUNALITY 4 FACTORS				
1	ECONAID	0.605	0.696	-0.068	-0.030	0.338
2	GNP	0.985	0.876	-0.430	-0.041	0.178
3	EXPORTS	0.989	0.955	-0.231	-0.022	0.151
4	IMPORTS	0.982	0.947	-0.236	-0.023	0.172
5	IMPT/GNP	0.687	0.542	0.595	-0.018	0.196
6	EXPT/GNP	0.875	0.541	0.715	0.052	0.261
7	ENERGY	0.966	0.889	-0.373	-0.023	0.191
8	AGRICPRO	0.922	-0.327	0.903	0.015	0.003
9	STEEL PR	0.989	0.887	-0.429	-0.033	0.127
10	POPULTN	0.968	-0.467	0.862	0.032	-0.072
11	DEFNCHUD	0.970	0.691	-0.678	0.002	0.183
12	DEFC/GNP	0.966	0.316	-0.919	-0.001	0.150
13	FIGHTERS	0.917	0.258	-0.827	-0.095	0.396
14	ARMFORCE	0.882	-0.226	-0.854	-0.019	-0.318
15	SUBMARIN	0.967	0.975	0.019	0.027	-0.121
16	ICBMS	0.780	0.844	0.078	0.024	-0.248
17	TREATIES	0.836	-0.501	0.735	0.121	0.173
18	STRG US	0.594	-0.005	-0.004	0.748	-0.184
19	WEAK US	0.446	-0.454	-0.224	-0.435	-0.018
20	ACTV US	0.744	-0.048	-0.138	0.845	0.096
21	PASS US	0.735	0.010	-0.424	-0.745	0.002
22	POST US	0.582	0.673	-0.015	-0.104	0.344
23	NEG US	0.872	-0.193	-0.062	0.199	-0.890
24	TPER US	0.928	-0.152	-0.076	0.776	-0.545

Factor Names:

* Industrialization and Nuclear Capability

** Conventional Force Defense Commitment

*** Perception of US as Active and as a Threat

**** Negative Perception of US

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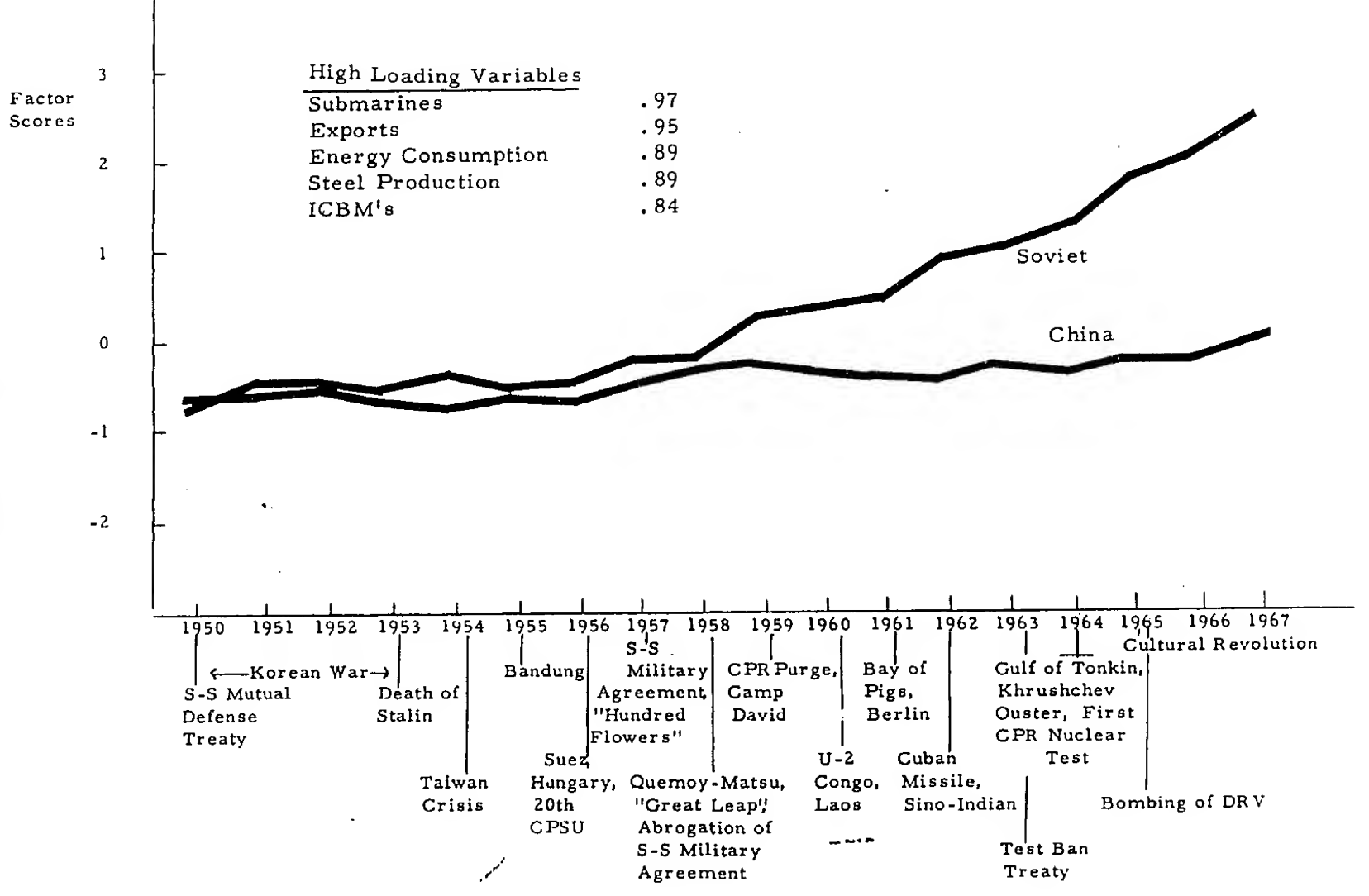

FIGURE 18

TWENTY-FOUR SOVIET AND CHINESE ATTRIBUTES: FACTOR 1
INDUSTRIALIZATION AND NUCLEAR CAPABILITY

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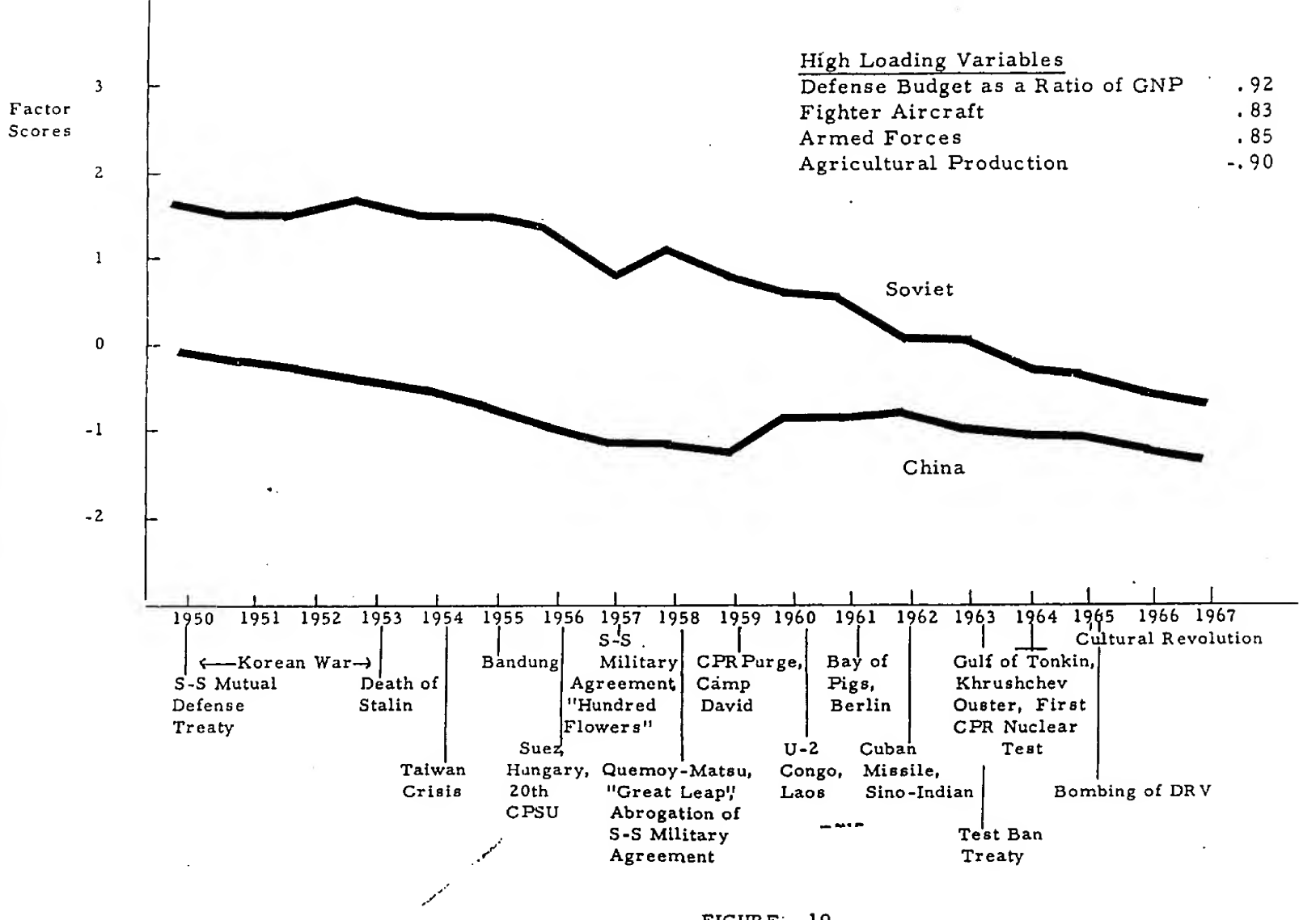

FIGURE 19

TWENTY-FOUR SOVIET AND CHINESE ATTRIBUTES: FACTOR 2
CONVENTIONAL FORCE DEFENSE COMMITMENT

We intercorrelated 24 variables including the 17 attribute variables of the previous two analyses and of the perception variables of the US for the two countries. Tables 19 and 20 present the statistics and correlations. The ICBM variable for the Chinese is included in this study since the absence of ICBM's in China becomes important in light of their presence in the Soviet Union. Excluded from this analysis was the Chinese perceptions of the Soviets and the Soviet perceptions of the Chinese, both of which are included in the interaction portion of the analysis. The positive eigenvalues are presented in Table 21 and the rotated factor matrix in Table 22. We found four factors accounted for 84.1% of total variance. The first factor called Industrialization and Strategic Capability accounts for 37% of the total variance. The second factor called the Commitment to Conventional Defense accounts for another 27% of the total variance. The scores for the two factors are plotted in Figures 18 and 19. Since there are two cases for each of the 18 years, we can plot two separate lines representing the Soviets and Chinese locations as measured by the factor. Standardizing both the Soviets and Chinese on a single variable maintains the relative differences between them while making comparisons between variables possible. The results are startling: more than 64% of our attribute variance as contained in these two summary dynamic patterns shows a gap between the Soviet pattern and the Chinese pattern. Between 1950 and 1967, the Chinese consistently fell behind in industrialization and nuclear capability, while closing the gap in conventional warfare commitment. The conventional military gap in 1967 was the narrowest it had been in any year while the industrialization and nuclear gap was the widest.

(U) These two gaps--both with stable patterns suggest a highly frustrating and potentially destabilizing situation for the Chinese. The Chinese committed increasing portions of their national resources to conventional defense apparently to maintain a stable pattern of growth vis-a'-vis the Soviets. This, however, cannot be maintained in the face of ever increasing gaps in industrial and nuclear capability. It is important to note here that the patterns we found were not perceived gaps--that is, measured by our perception variables but were actual gaps measured by "physical" variables. The extent to which the Soviets and Chinese clearly perceived the patterns is unknown. The most recent Soviet arms build-up may indicate that the Soviets indeed have perceived the closing conventional gap and have moved to strengthen their own conventional force capability.

(U) The scores for factors three and four are plotted in Figures 20 and 21. Both factors represent patterns of perception variables. The third factor is defined by Soviet and Chinese perceptions of the United States as strong, active and threatening. From the plot, it is clear that a marked dissimilarity in perceptions of the US existed between the Soviets and Chinese during the period 1950-1967. It is also clear, however, that no clear-cut pattern emerged. Over the period as a whole, the Chinese perceived the US as more threatening than the Soviets did about as often as the Soviets perceived the US as more threatening than the Chinese did. It would appear from this that the Chinese did not rely on the Soviets for their interpretation or perceptions of US intentions.

(U) The fourth factor is defined by a negative perception of the US. Although the Soviets and Chinese differed in the degree of their negativity their pattern of perceptions from 1957, exhibited a striking similarity, i.e., their negative perception of the US increased and decreased at the same time.

4. Difference Between the Soviets and Chinese on the National Attributes

(U) The joint attribute analysis yielded some interesting hypotheses concerning the gaps between the Soviet and Chinese attributes. In this section we develop a method of measuring and patterning these gaps which allows the prediction of interaction patterns from them.

(U) The first impulse, of course, would be to subtract the Chinese factor scores from the Soviet factor scores in each of the four plots in Figure 18 through 21. We took a different tact, however, arguing that these patterns might indeed best describe the common attribute patterns for the two nations, but that what we really wanted were those patterns representing the dynamic differences between the Soviet and Chinese attributes. The point may appear subtle, but it acutally is a rather major change of perspective. In the joint analysis, for example, we found an industrialization factor which just happened to reflect the difference in growth rates between the Soviets and Chinese. But it is more central to our hypotheses that the differences in Chinese and Soviet growth rates predict to the conflictual interaction patterns between them. To obtain these differences, the actual variable by variable differences were calculated. These differences, give us a way to examine the dynamics of the gaps between the Soviets and Chinese during this eighteen year period. We can again use factor analysis as a way of patterning the dynamics across time. These factors patterns will reflect the situation shown in Figures 18 through 21 but will be more detailed and more sensitive to the shifts in gap from one year to the next.

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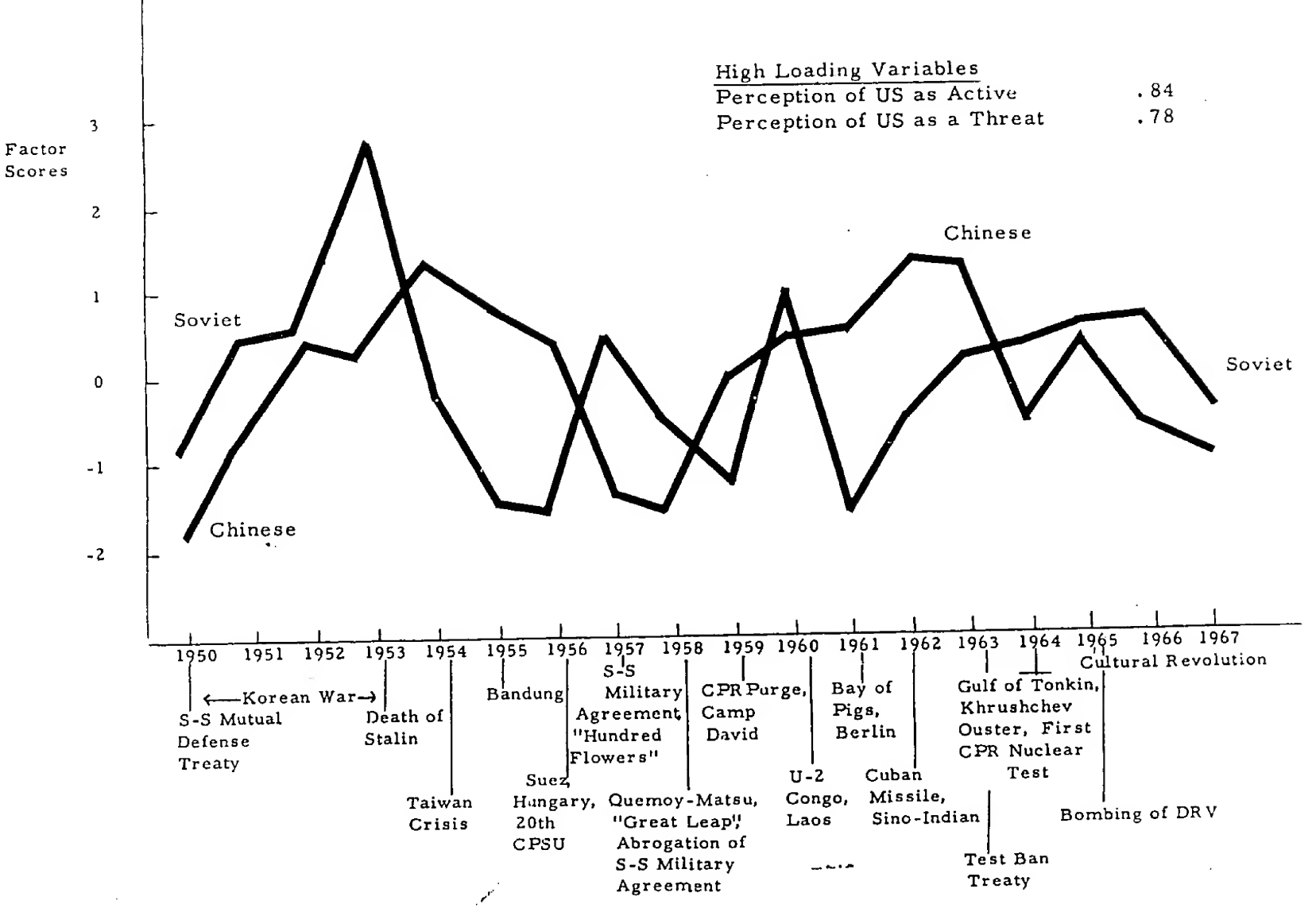

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FIGURE 20

TWENTY-FOUR SOVIET AND CHINESE ATTRIBUTES: FACTOR 3
PERCEPTION OF US AS ACTIVE AND AS A THREAT

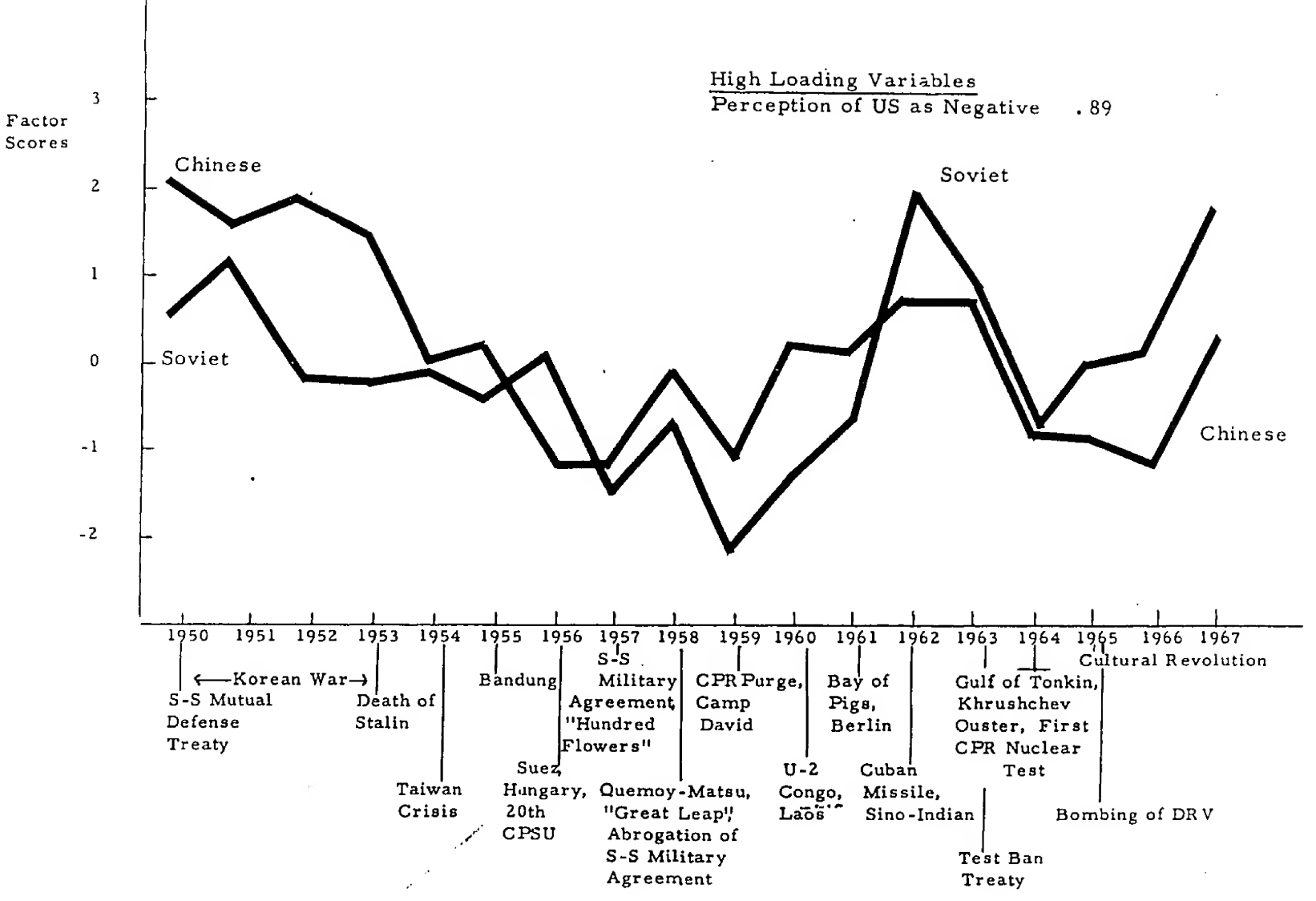

FIGURE 21

TWENTY-FOUR SOVIET AND CHINESE ATTRIBUTES: FACTOR 4
NEGATIVE PERCEPTION OF US

(U) Before the analyses were run the variable "economic aid to less developed countries" was dropped. The distribution of the variable is badly skewed, and clearer patterns emerged from the analysis without it. The difference matrix consists, therefore, of 23 variables; 16 physical variables and the 7 US perception variables.

(U) Tables 23 and 24 present the statistics and correlations for the matrix. These correlations are factored four times: first, for the 23 variables, secondly, for the 17 "physical" variables, thirdly, for the 9 economic variables, and fourthly, for the 6 military variables. The different groupings are examined so that in the next section they can be used to discover the set of variables that will best predict to the interactions.

a. Sino-Soviet Differences--23 Attributes

(U) The table of positive eigenvalues for the 23 variables is shown in Table 25. Three factors explain 75.1 percent of the total variance in these 23 variables. The first three factors, therefore, were rotated to an orthogonal simple structure. The rotated factor matrix is shown in Table 26.

(U) As expected, the predominant factor shows a widening gap between the Soviets and Chinese in Industrialization and Nuclear Capability. This factor accounts for 49.6 percent of total variance and is plotted in Figure 22. This gap steadily and rapidly increased since the year 1957, which it might be noted, marked the beginning of the disastrous"Great Leap" in China. As can be seen from Figure 18 in which the individual Chinese and Soviet growth rates are plotted, the widening gap was due to a combination of slow economic and nuclear growth by the Chinese and rapid economic and nuclear growth by the Soviets. It is also interesting to note the high negative loading of population. An increasingly large gap in population is occurring as the industrialization gap widens. However, on this variable, the Chinese are increasing rapidly while the Soviets are experiencing nominal population growth. The reason is due less to differences in population growth rates than it is to the differences in the absolute sizes of the population.

(U) The second and third factors are both indexed by perception variables. The second, plotted in Figure 23, is called the Gap in US Threat Perception. The difference between Soviet and Chinese perceptions of the US as a threat has varied considerably over time although there seems to be a trend since 1962 for the gap to decrease.

TABLE 23

DIFFERENCES IN SOVIET AND CHINESE NATIONAL ATTRIBUTES AND CONTENT ANALYSIS 24 VARIABLES 1950 - 1967

STATISTICS

VARIABLE NO.	NAME	MEAN	SE	ST DEV	SE	SKEW	KURTOSIS
~~1~~	~~EQUIAID~~	291.500	76.549	326.467	658023.875	1.325*	0.182
2	GNP	171.167	12.978	55.061	18717.543	0.551	0.107
3	EXPORTS	3677.389	458.598	1945.668	23372256.000	0.561	0.096
4	IMPORTS	3484.722	445.403	1889.687	22046640.000	0.330	0.082
5	IMPT/GNP	-1.111	1.071	4.545	127.519	0.919	0.116
6	EXPT/GNP	-1.556	0.649	2.753	46.800	-0.404	0.119
7	ENERGY	450652.375	30492.859	129370.250	103331332096.000	0.736	0.143
8	AGRICPRO	-70891.625	2855.339	12114.176	906047232.000	0.768	0.123
9	STEEL PR	55212.055	4663.613	19786.035	2417021952.000	0.393	0.105
10	POPULTN	-442453.312	12190.293	51719.039	16514441216.000	-0.227	0.110
11	DEFNCBUD	10488.887	246.440	1045.558	6749305.000	0.546	0.116
12	DEFC/GNP	710.000	36.493	154.825	147993.625	0.646	0.113
13	FIGHTERS	8023.941	735.314	3119.674	60087120.000	-0.801	0.134
14	AIRFORCE	1119.778	159.981	674.500	2808844.000	1.646**	0.209
15	SUBMARIN	23.333	6.657	28.245	4925.437	0.936	0.118
16	TROOPS	105.556	45.214	191.825	227162.250	2.566**	0.378
17	TREATIES	-5.111	4.922	20.880	2691.770	0.077	0.128
18	STRG US	-48.889	157.837	669.645	2708552.000	-1.389**	0.188
19	WEAK US	-22.222	74.564	316.348	617865.750	1.525**	0.267
20	ACTV US	63.611	173.280	735.165	3336820.000	0.252	0.168
21	PASS US	211.889	91.104	386.522	922386.125	0.353	0.108
22	POST US	375.500	97.769	414.799	1062278.000	0.088	0.129
23	NEG US	-210.222	123.584	524.747	1700054.000	0.375	0.226
24	TPER US	-3576.833	3471.877	14729.926	1339566336.000	-0.168	0.100

SE - SKEW = 0.536
SE - KURTOSIS = 1.038

* SIGNIFICANT AT .05 LEVEL
** SIGNIFICANT AT .01 LEVEL

TABLE 24

DIFFERENCES IN SOVIET AND CHINESE NATIONAL ATTRIBUTES AND CONTENT ANALYSIS — 24 VARIABLES 1950 - 1967

CORRELATIONS

NO.	VARIABLE	1 ECONAID	2 GNP	3 EXPORTS	4 IMPORTS	5 IMPT/GNP	6 EXPT/GNP	7 ENERGY	8 AGRICPRO	9 STEEL PR	10 POPULTN	11 DEFNCBUD	12 DEFC/GNP
~~1~~	~~ECONAID~~	~~1.000~~											
2	GNP	0.4979	1.0000										
3	EXPORTS	0.4868	0.9895	1.0000									
4	IMPORTS	0.5280	0.9643	0.9768	1.0000								
5	IMPT/GNP	0.3843	0.6315	0.6773	0.7988	1.0000							
6	EXPT/GNP	0.2630	0.6705	0.7535	0.7640	0.7055	1.0000						
7	ENERGY	0.5434	0.9444	0.9135	0.8693	0.4625	0.4896	1.0000					
8	AGRICPRO	0.4686	0.3778	0.3738	0.3286	0.1799	0.3228	0.2996	1.0000				
9	STEEL PR	0.5372	0.9942	0.9824	0.9667	0.6342	0.6536	0.9505	0.3332	1.0000			
10	POPULTN	-0.5559	-0.9843	-0.9676	-0.9496	-0.6002	-0.6175	-0.9539	-0.3142	-0.9897	1.0000		
11	DEFNCBUD	0.4037	0.7783	0.8122	0.7637	0.5107	0.6463	0.7298	0.2526	0.7806	-0.7349	1.0000	
12	DEFC/GNP	-0.6201 1	-0.8850 2	-0.8470 3	-0.8763 4	-0.6387 5	-0.4925 6	-0.8569 7	-0.3790 8	-0.8895 9	0.9185 10	-0.4689 11	1.0000 12
13	FIGHTERS	-0.2109	-0.7260	-0.7510	-0.6695	-0.3807	-0.6218	-0.6678	-0.5692	-0.6911	0.6224	-0.7419	0.4356
14	ARMFORCE	-0.3721	-0.5353	-0.5479	-0.5605	-0.5362	-0.3271	-0.5043	-0.4552	-0.5130	0.5407	-0.3942	0.5957
15	SUBMARIN	0.4446	0.9655	0.9781	0.9382	0.6092	0.7268	0.9007	0.4524	0.9565	-0.9288	0.8181	-0.7935
16	ICBMS	0.2909	0.8244	0.8097	0.6828	0.1658	0.4676	0.8580	0.4264	0.8039	-0.7897	0.7392	-0.5857
17	TREATIES	-0.5621	-0.3573	-0.3868	-0.5255	-0.6816	-0.4823	-0.2466	0.0038	-0.3902	0.3831	-0.3489	0.4074
18	STRG US	0.3095	-0.0321	-0.0273	-0.0715	-0.2457	-0.0902	0.1712	0.2120	-0.0077	0.0212	0.0761	0.0433
19	WEAK US	-0.1427	-0.3472	-0.3924	-0.3561	-0.2899	-0.5439	-0.2249	-0.4681	-0.2861	0.3179	-0.2402	0.3246
20	ACTV US	-0.0548	0.0111	0.0355	-0.0111	-0.0110	0.0801	0.0464	0.1588	-0.0278	0.0403	0.0822	0.0825
21	PASS US	-0.0318	-0.1867	-0.2284	-0.1855	-0.0447	-0.2819	-0.2071	-0.2348	-0.1914	0.1643	-0.2546	0.0652
22	POST US	0.1978	0.2475	0.2491	0.2358	0.0675	0.1547	0.1369	0.1193	0.2516	-0.2730	0.1571	-0.2690
23	NEG US	0.3289	0.3312	0.2517	0.2397	-0.0002	-0.0801	0.4411	0.1793	0.3642	-0.3264	0.0328	-0.4031
24	TPER US	0.2640	0.1051	0.0729	0.0208	-0.1865	-0.1185	0.2891	0.2805	0.1113	-0.0796	0.0203	-0.1055

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TABLE 24 -cont'd-

DIFFERENCES IN SOVIET AND CHINESE NATIONAL ATTRIBUTES AND CONTENT ANALYSIS 24 VARIABLES 1950 - 1967

CORRELATIONS

	NO. VARIABLE	13 FIGHTERS	14 ARMFORCE	15 SUBMARIN	16 ICBMS	17 TREATIES	18 STRG US	19 WEAK US	20 ACTV US	21 PASS US	22 POST US	23 NEG US	24 TPER US
13	FIGHTERS	1.0000											
14	ARMFORCE	0.4422	1.0000										
15	SUBMARIN	-0.8586	-0.5463	1.0000									
16	ICBMS	-0.8485	-0.4098	0.8739	1.0000								
17	TREATIES	0.0379	0.0346	-0.3051	0.0733	1.0000							
18	STRG US	-0.2050	-0.1504	0.0479	0.2547	0.2372	1.0000						
19	WEAK US	0.3862	0.5622	-0.4057	-0.3229	0.0455	-0.0375	1.0000					
20	ACTV US	-0.3426	-0.3970	0.1075	0.1761	0.2374	0.2055	-0.5170	1.0000				
21	PASS US	0.4931	0.4526	-0.3260	-0.4044	-0.2869	-0.5413	0.4135	-0.5818	1.0000			
22	POST US	-0.0700	0.0346	0.2563	0.2109	-0.2098	-0.0765	-0.0802	-0.5395	0.0909	1.0000		
23	NEG US	-0.1644	0.0788	0.2464	0.2979	0.1023	0.2987	0.3537	-0.1726	0.0337	-0.0826	1.0000	
24	TPER US	-0.3354	-0.2174	0.1562	0.3372	0.3336	0.7719	-0.0982	0.5418	-0.5227	-0.3626	0.5796	1.0000

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TABLE 25

Differences in Soviet and Chinese Attributes

TABLE OF POSITIVE EIGENVALUES

NO.	EIGENVALUE	PERCENT OF COMMUNALITY ALL (18) FACTORS Each	Cumulative
1	11.405	49.6	49.6
2	3.591	15.6	65.2
3	2.284	9.9	75.1
4	1.333	5.8	80.9
5	1.076	4.7	85.6
6	0.914	4.0	89.6
7	0.776	3.4	93.0
8	0.502	2.2	95.1
9	0.445	1.9	97.1
10	0.296	1.3	98.4
11	0.173	0.8	99.1
12	0.124	0.5	99.6
13	0.044	0.2	99.8
14	0.021	0.1	99.9
15	0.010	0.0	100.0
16	0.005	0.0	100.0
17	0.001	0.0	100.0
18	0.000	0.0	100.0

TRACE OF ORIGINAL MATRIX = 23.000
COMMUNALITY OVER 18 FACTORS = 23.000

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TABLE 26

DIFFERENCES IN SOVIET AND CHINESE NATIONAL ATTRIBUTES AND CONTENT ANALYSIS

ROTATED FACTOR MATRIX — 23 VARIABLES 1950 - 1967

FACTOR NUMBER		1 *	2 **	3 ***
SUM SQUARES OVER VARIABLES		10.934	3.275	3.070
PERCENT OF TOTAL VARIANCE		47.540	14.240	13.346
VARIABLE NO.	NAME	COMMUNALITY 3 FACTORS		
1	GNP	0.985	0.989	-0.037	0.078
2	EXPORTS	0.986	0.978	-0.087	0.155
3	IMPORTS	0.976	0.960	-0.191	0.133
4	IMPT/GNP	0.691	0.829	-0.491	0.232
5	EXPT/GNP	0.719	0.658	-0.339	0.413
6	ENERGY	0.933	0.947	+0.187	-0.018
7	AGRICPRO	0.322	0.394	+0.216	0.347
8	STEEL PR	0.986	0.992	-0.030	0.026
9	POPULTN	0.955	0.976	+0.053	-0.022
10	DEFNCBUD	0.655	0.791	-0.071	0.212
11	DEFC/GNP	0.789	0.885	+0.073	0.032
12	FIGHTERS	0.748	0.720	-0.251	-0.409
13	ARMFORCE	0.586	0.497	-0.058	-0.579
14	SUBMARIN	0.971	0.961	+0.016	0.217
15	ICBMS	0.810	0.813	+0.352	0.159
16	TREATIES	0.550	-0.391	+0.625	0.084
17	STRG US	0.586	0.048	+0.755	0.118
18	WEAK US	0.716	-0.266	+0.105	-0.797
19	ACTV US	0.749	-0.066	+0.377	0.776
20	PASS US	0.678	-0.176	-0.484	-0.642
21	POST US	0.239	0.285	-0.311	-0.247
22	NEG US	0.786	0.400	+0.574	-0.543
23	TPER US	0.861	0.141	+0.902	0.167

Factor Names:

* Industrialization and Nuclear Capability Gap

** Gap in US Threat Perception

*** Gap in Perception of US as Active

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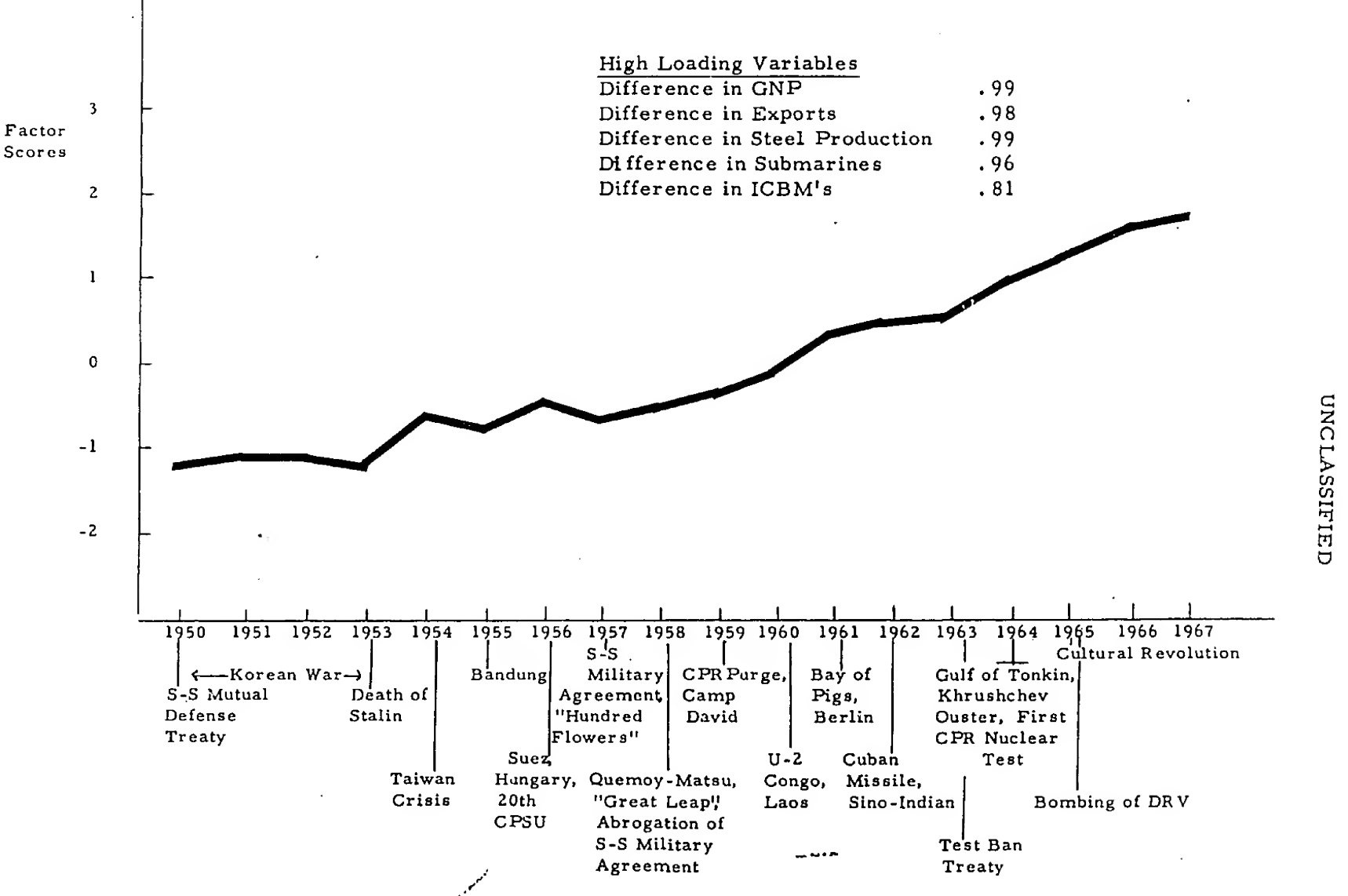

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FIGURE 22

DIFFERENCES BETWEEN THE SOVIETS AND CHINESE ON 23 ATTRIBUTES: FACTOR INDUSTRIALIZATION AND NUCLEAR CAPABILITY GAP

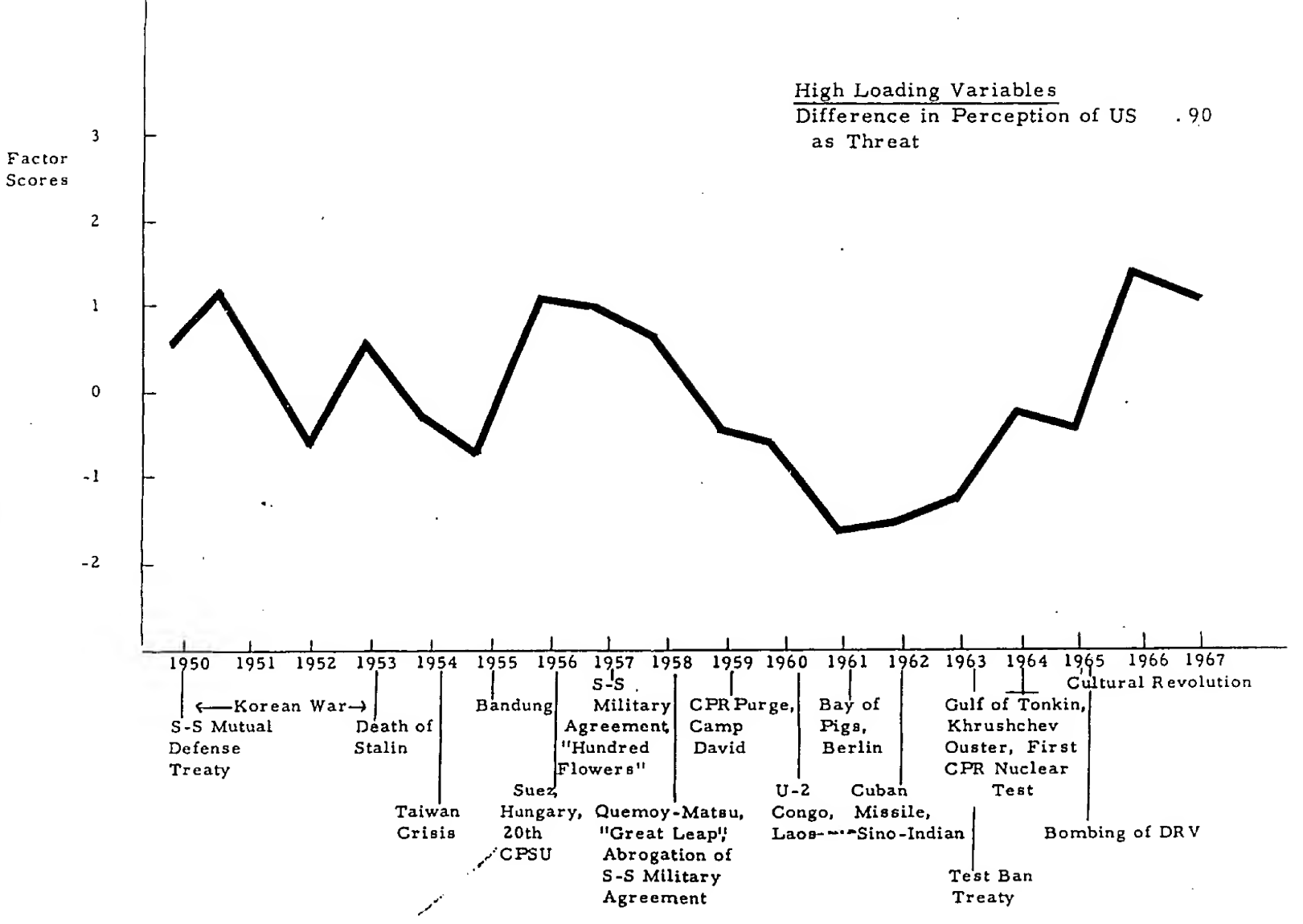

FIGURE 23

DIFFERENCES BETWEEN THE SOVIETS AND CHINESE ON 23 ATTRIBUTES: FACTOR 2
GAP IN US THREAT PERCEPTION

(U) The third factor, plotted in Figure 24, is called the Gap in Perception of US as Active. It evidences a fluctuating but generally upward trend since 1956; that is, the gap between Soviet and Chinese perceptions of the US being active has increased. The differences between the Soviets and Chinese in their perceptions of the US has been mentioned as an important element infringing upon the increasing Sino-Soviet hostility. This hypothesis is further examined in Section VI of the report where the results of the gap analysis are related to the interaction patterns.

b. Sino-Soviet Differences - 16 "Physical" Attributes

(U) The table of positive eigenvalues for the differences in 16 variables is shown in Table 27. Variable statistics and correlations are shown in Tables 23 and 24. The first three factors explain 86.4 percent of the total variance in the 16 variables. We rotated these three factors to an orthogonal simple structure. The rotated factor matrix is shown in Table 28.

(U) The predominant factor here, as in the 23 variable solution, is the Industrialization and Nuclear Capability Gap. The scores for the factor are plotted in Figure 25. The difference between the Soviets and the Chinese in measures of economic growth and nuclear capability is rapidly widening. The population variable again loaded negatively indicating the increasingly wide disparity between the size of the populations in each country.

(U) With the perception variables eliminated, the second factor describes a pattern of Treaties and Trade Gap. The scores for the factor are plotted in Figure 26. The gap between the number of treaties that the Soviets and Chinese each signed with the world increased to a high in 1964 and decreased rapidly to a low in 1967. The Chinese consistently signed more treaties than the Soviets every year and essentially caused the shape of the pattern. In 1967, the Chinese signed less treaties than in any previous year except 1951. The indexing trade variable is the "ratio of imports to GNP." From 1950 to 1960, the gap fluctuated but the Chinese ratio was consistently higher. The Soviet ratio was larger from 1961 to 1965. The two countries were even in 1966 with the Chinese gaining again in 1967. By 1967, the treaties gap was decreasing, and the trade dependence gap was increasing: The Chinese were nearing a low in treaties signed and were at a high in trade dependency.

(U) The third factor describes the pattern of the gap between the Soviets and Chinese in agricultural production and conventional military forces. The factor scores are plotted in Figure 27. The gap between the two countries in agricultural production has varied considerably over time with the Soviets consistently behind. The gap between the Soviets and Chinese in conventional forces has also fluctuated over time with the Chinese tending to close the gap since 1961.

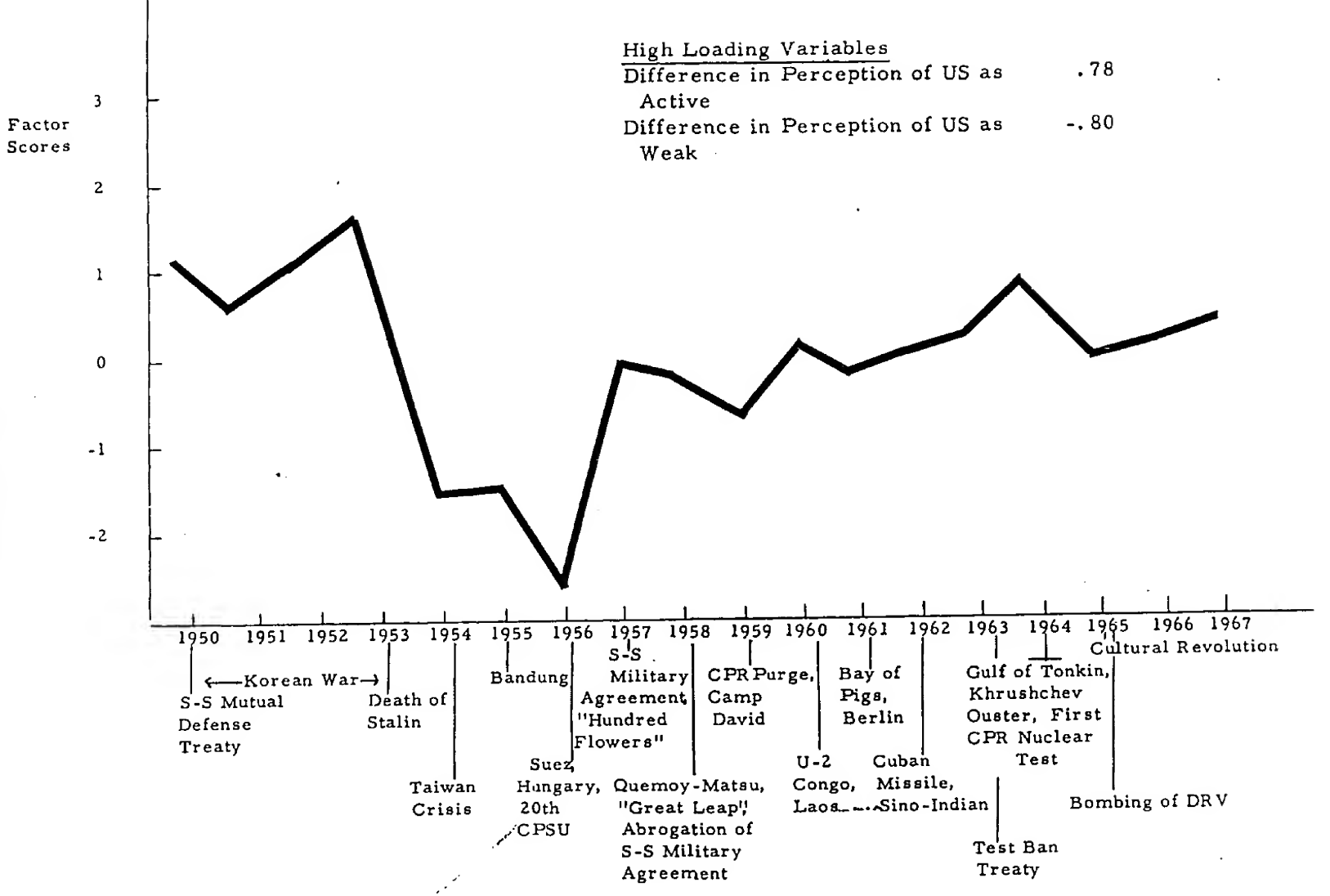

FIGURE 24

DIFFERENCES BETWEEN THE SOVIETS AND CHINESE ON 23 ATTRIBUTES: FACTOR 3
GAP IN PERSPECTIVE OF US AS ACTIVE

TABLE 27

Differences in Soviet and Chinese Attributes

16 Variables

TABLE OF POSITIVE EIGENVALUES

NO.	EIGENVALUE	PERCENT OF COMMUNALITY ALL (16) FACTORS Each	Cumulative
1	10.992	68.7	68.7
2	1.785	11.2	79.9
3	1.054	6.6	86.4
4	0.960	6.0	92.4
5	0.553	3.5	95.9
6	0.328	2.0	98.0
7	0.166	1.0	99.0
8	0.101	0.6	99.6
9	0.038	0.2	99.9
10	0.010	0.1	99.9
11	0.006	0.0	100.0
12	0.003	0.0	100.0
13	0.002	0.0	100.0
14	0.001	0.0	100.0
15	0.000	0.0	100.0
16	0.000	0.0	100.0

TRACE OF ORIGINAL MATRIX = 16.000
COMMUNALITY OVER 16 FACTORS = 16.000

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TABLE 28

DIFFERENCES IN SOVIET AND CHINESE NATIONAL ATTRIBUTES 16 VARIABLES 1950-1967 3 FACTORS

ROTATED FACTOR MATRIX

	FACTOR NUMBER	1 *	2 **	3 ***
SUM SQUARES OVER VARIABLES		8.184	3.389	2.257
PERCENT OF TOTAL VARIANCE		51.152	21.184	14.106

VARIABLE NO.	NAME	COMMUNALITY 3 FACTORS			
1	GNP	0.983	[0.886]	0.374	-0.244
2	EXPORTS	0.990	[0.863]	0.419	-0.265
3	IMPORTS	0.992	0.769	[0.585]	-0.244
4	IMPT/GNP	0.913	0.274	[0.875]	-0.268
5	EXPT/GNP	0.635	0.479	[0.571]	-0.283
6	ENERGY	0.922	[0.925]	0.210	-0.151
7	AGRICPRD	0.791	0.184	-0.021	[-0.870]
8	STEEL PR	0.981	[0.887]	0.397	-0.196
9	POPULTN	0.950	[-0.874]	-0.393	0.176
10	DEFNCHUD	0.698	[0.780]	0.266	-0.140
11	DEFC/GNP	0.756	[-0.664]	-0.488	0.277
12	FIGHTERS	0.782	-0.725	0.008	[0.506]
13	ARMFORCE	0.656	-0.299	-0.261	[0.768]
14	SUBMARIN	0.992	[0.878]	0.304	-0.344
15	ICBMS	0.982	[0.957]	-0.169	-0.276
16	TREATIES	0.818	-0.092	[-0.886]	-0.157

Factor Names:

* Industrialization and Nuclear Capability Gap

** Treaties and Trade Dependence Gap

*** Agricultural Production and Conventional Forces Gap

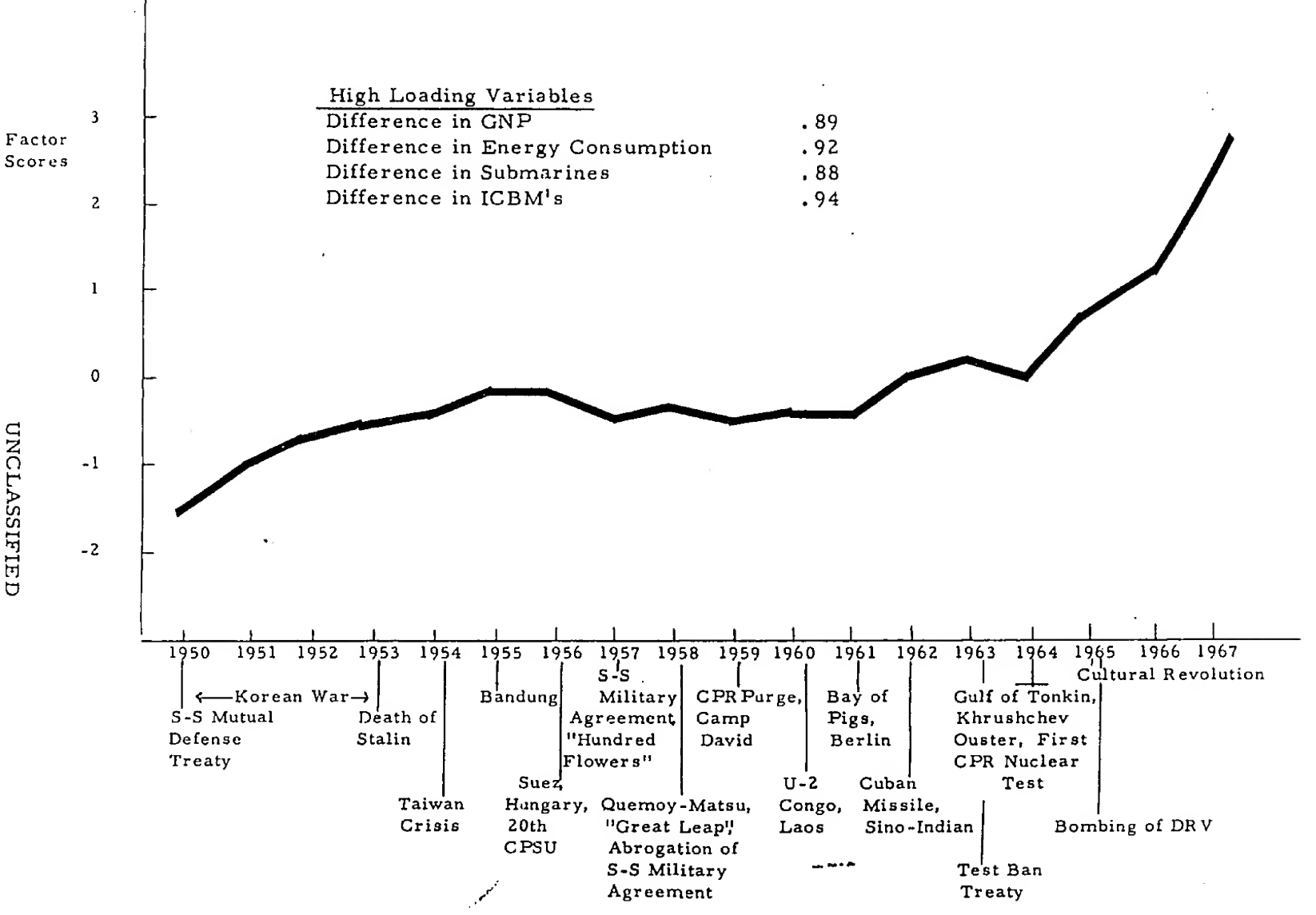

FIGURE 25

DIFFERENCES BETWEEN THE SOVIETS AND CHINESE ON 16 ATTRIBUTES: FACTOR 1
INDUSTRIALIZATION AND NUCLEAR CAPABILITY GAP

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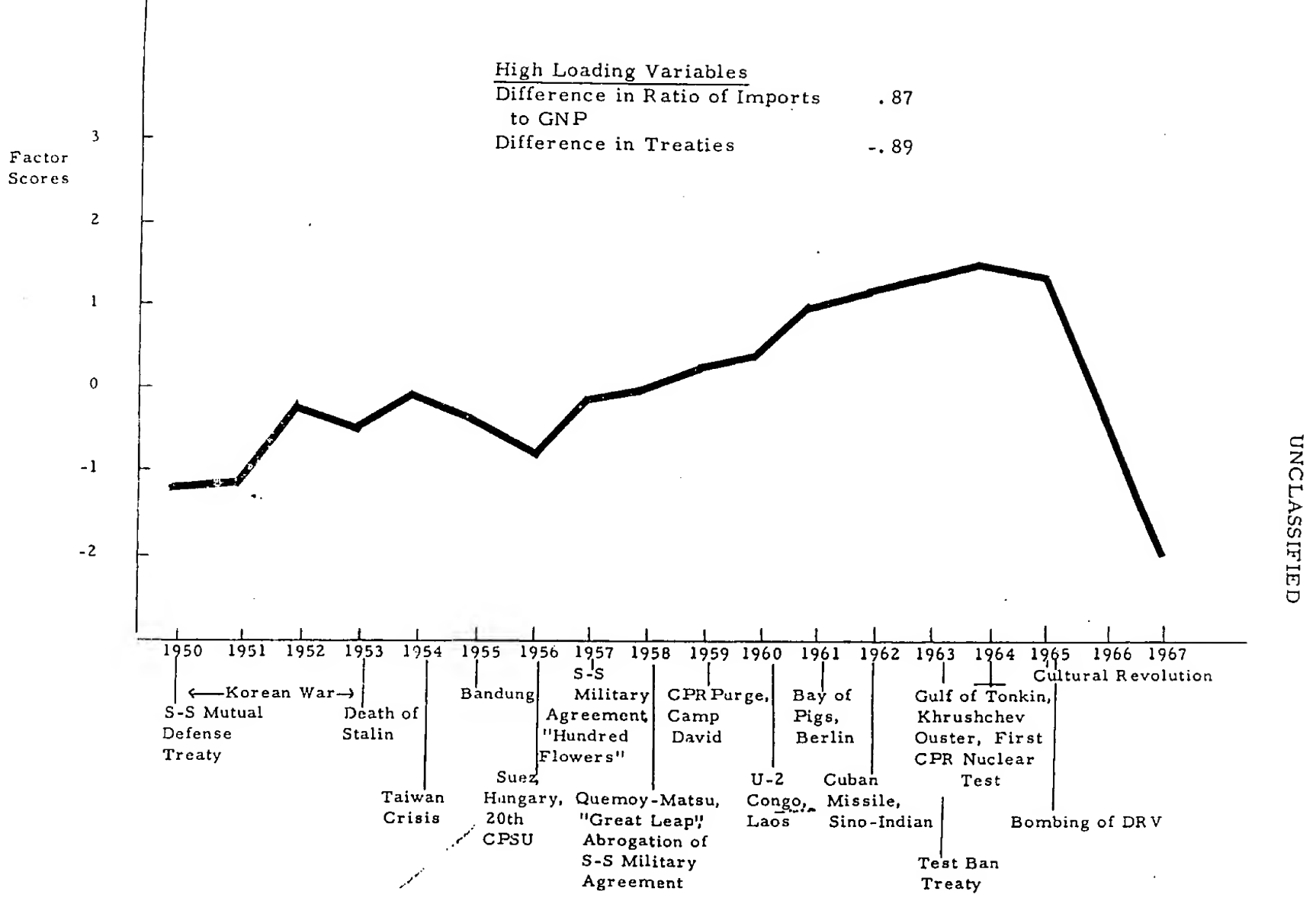

FIGURE 26

DIFFERENCES BETWEEN THE SOVIETS AND CHINESE ON 16 ATTRIBUTES: FACTOR 2

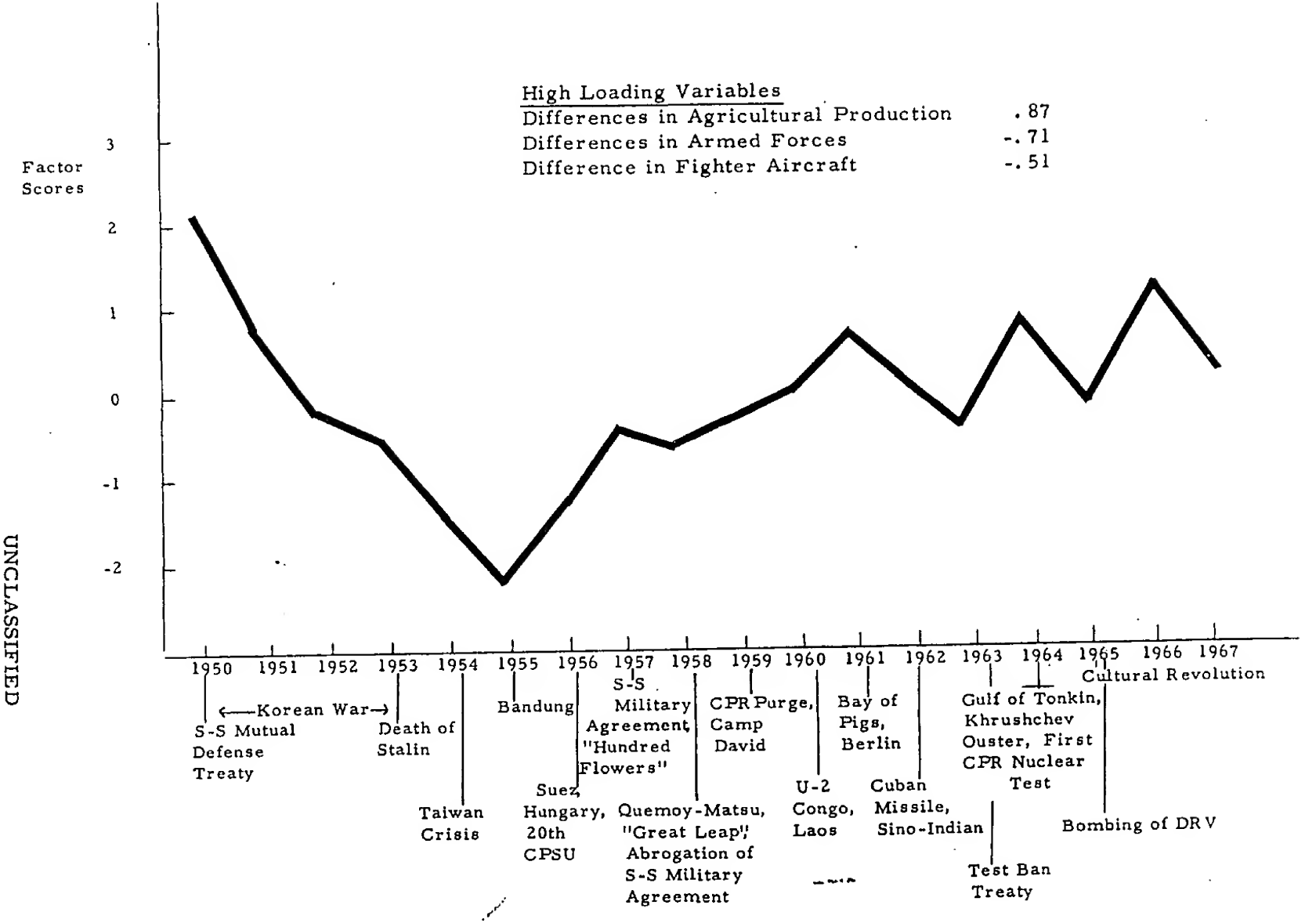

FIGURE 27

DIFFERENCES BETWEEN THE SOVIETS AND CHINESE ON 16 ATTRIBUTES: FACTOR 2
AGRICULTURAL PRODUCTION AND CONVENTIONAL FORCES GAP

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c. Sino-Soviet Differences - 9 Economic Attributes

(U) A factor analysis was performed on the 9 economic attributes. Variable statistics and correlations are presented in Tables 23 and 24. The table of positive eigenvalues for the variables is shown in Table 29. Three of these factors explain 96.1 percent of total variance. The three factors were rotated to an orthogonal simple structure. The rotated factor matrix is presented in Table 30.

(U) The first factor explains 77.0 percent of the variance and is appropriately labeled the Industrialization Gap. Here again, the dominant pattern is the difference between the Soviets and Chinese in economic growth. The factor scores are plotted in Figure 28.

(U) The second factor explains 9.8 percent of total variance and is called the Soviet and Chinese Agricultural Production Gap. The factor scores are plotted in Figure 29. The Soviets have consistently lagged behind the Chinese in total agricultural production.

(U) The third factor, the Trade Dependence Gap explains 9.3 percent of total variance and describes the difference between the Soviets and Chinese in terms of world trade dependency. The pattern shows the dynamics of this factor across time with the final downswing---from 1962 on---representing decreased Soviet dependency and increased Chinese dependency on external trade. The factor scores are plotted in Figure 30.

d. Sino-Soviet Differences - 6 Military Attributes

(U) Only the 6 military variables were factor analyzed in this analysis. The variable statistics and correlations are presented in Tables 23 and 24. The table of positive eigenvalues for the variables is shown in Table 31. Three factors explain 92.8 percent of total variance. These three factors were rotated to an orthogonal simple structure. The rotated factor matrix is shown in Table 32.

(U) The predominant factor is the Nuclear Capability Gap. The factor explains 70.8 percent of total variance and therefore describes the major pattern existing between the Soviets and Chinese in differences on their military attributes. The factor scores are plotted in Figure 31. The pattern describes the Soviet's rapidly increasing nuclear capability---as measured by the total number of ICBM's deployed and submarines with nuclear missile launching capability---while the Chinese were making only slow progress. Also included in this pattern was the decreasing gap between the Soviets and Chinese in fighter aircraft. The Soviets decreased their conventional aircraft as they passed into the nuclear age, while the Chinese continued to rapidly expand theirs.

TABLE 29

Differences in Soviet and Chinese Economic Attributes- 9 Variables

TABLE OF POSITIVE EIGENVALUES

NO.	EIGENVALUE	PERCENT OF COMMUNALITY ALL (9) FACTORS Each	Cumulative
1	6.928	77.0	77.0
2	0.884	9.8	86.8
3	0.837	9.3	96.1
4	0.287	3.2	99.3
5	0.037	0.4	99.7
6	0.016	0.2	99.9
7	0.006	0.1	99.9
8	0.003	0.0	100.0
9	0.002	0.0	100.0

TRACE OF ORIGINAL MATRIX = 9.000
COMMUNALITY OVER 9 FACTORS = 9.000

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TABLE 30

DIFFERENCES IN SOVIET AND CHINESE ECONOMIC ATTRIBUTES 1950 - 1967 9 VARIABLES

ROTATED FACTOR MATRIX

FACTOR NUMBER		1 *	2 **	3 ***
SUM SQUARES OVER VARIABLES		5.015	1.126	2.507
PERCENT OF TOTAL VARIANCE		55.722	12.511	27.860
VARIABLE NO.	NAME	COMMUNALITY 3 FACTORS		
1	GNP	0.994	0.897	0.185	0.392
2	EXPORTS	0.988	0.847	0.185	0.496
3	IMPORTS	0.993	0.789	0.125	0.596
4	IMPT/GNP	0.879	0.324	-0.003	0.879
5	EXPT/GNP	0.848	0.339	0.214	0.829
6	ENERGY	0.974	0.967	0.116	0.161
7	AGRICPRO	0.992	0.174	0.975	0.109
8	STEEL PR	0.995	0.910	0.136	0.385
9	PUPULTN	0.986	-0.926	-0.119	-0.340

Factor Names:

* Industrialization Gap

** Agricultural Production Gap

*** Trade Dependency Gap

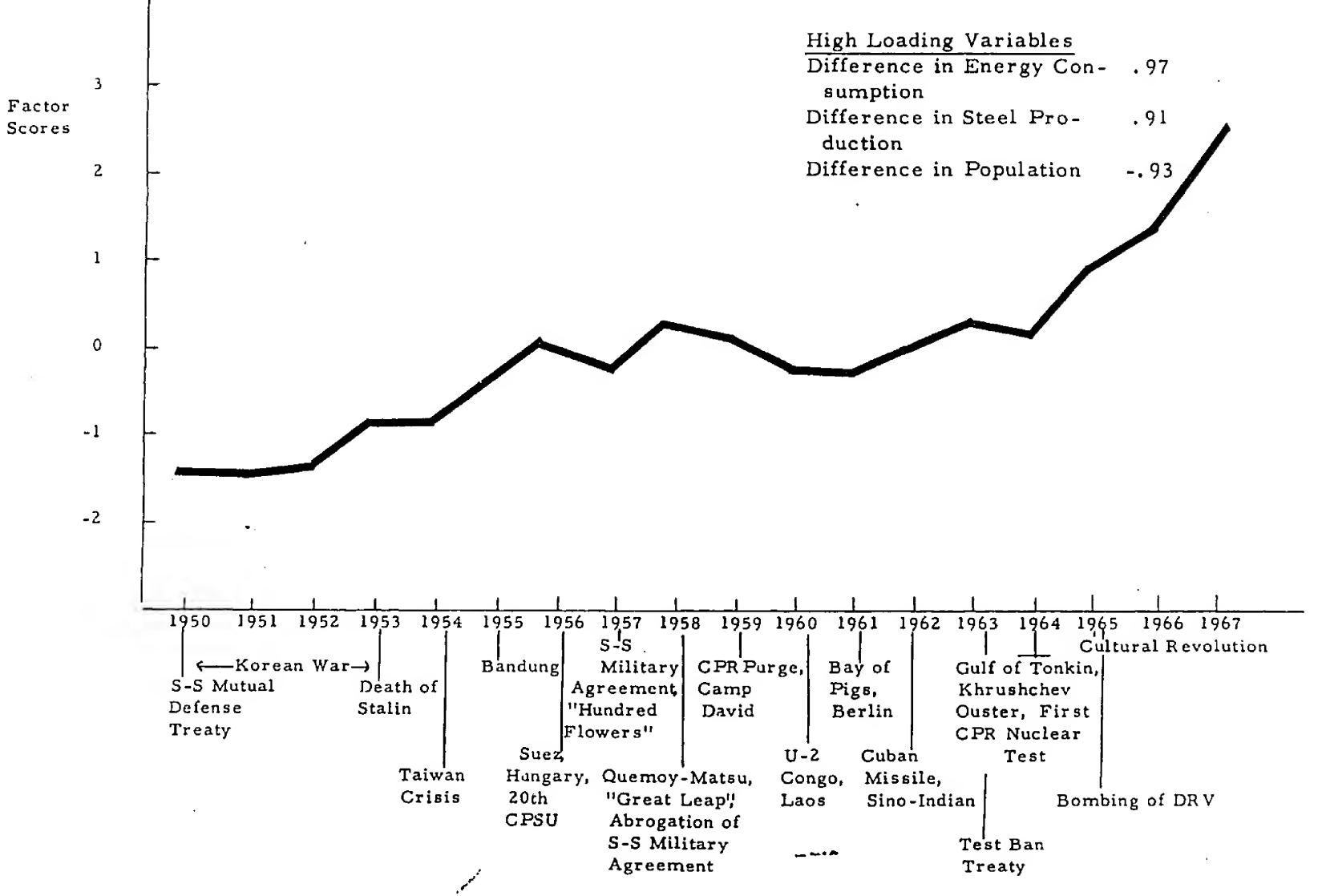

FIGURE 28

DIFFERENCES BETWEEN THE SOVIETS AND CHINESE ON 9 ECONOMIC ATTRIBUTES: FACTOR 1
INDUSTRIALIZATION GAP

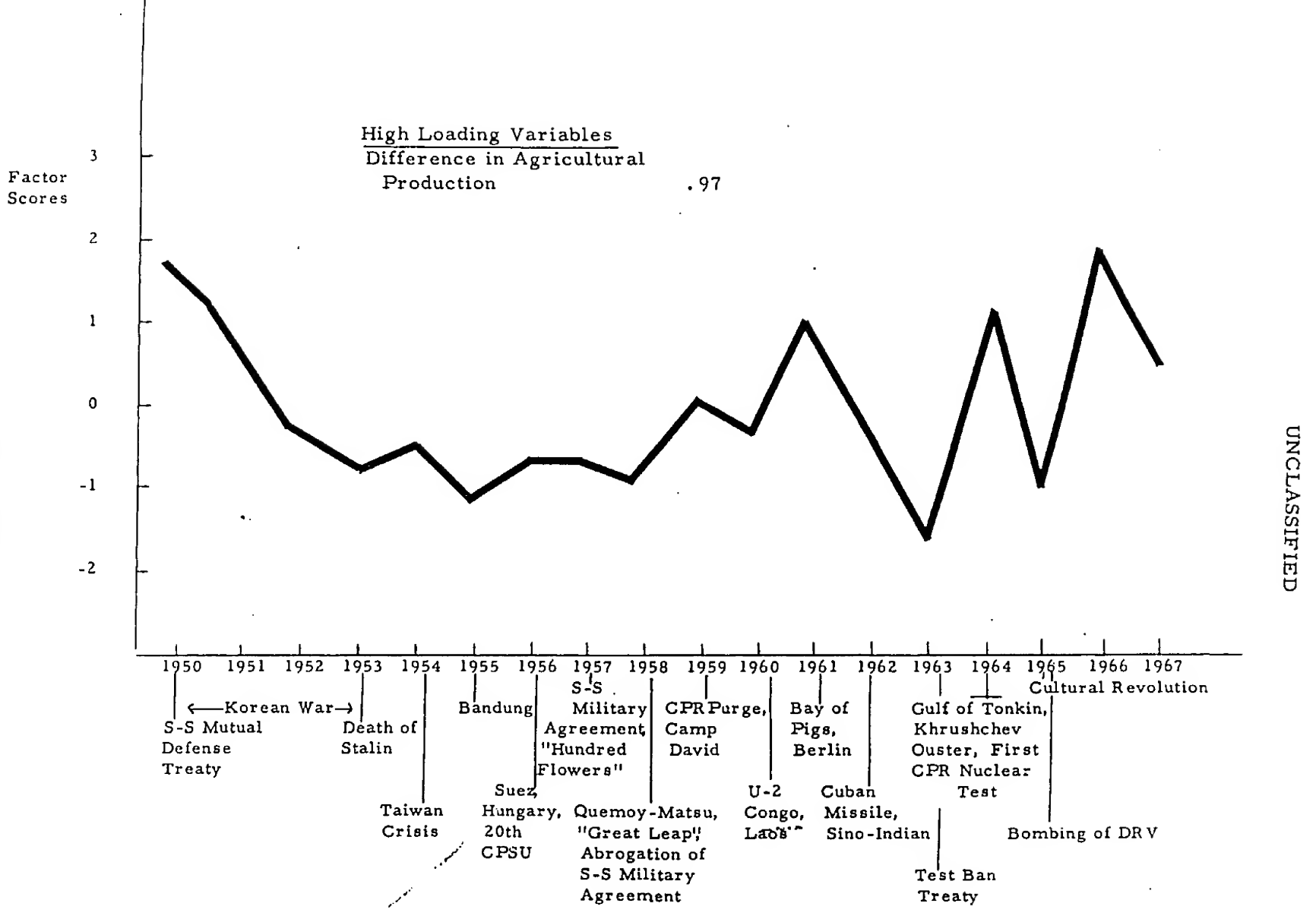

FIGURE 29

DIFFERENCES BETWEEN THE SOVIETS AND CHINESE ON 9 ECONOMIC ATTRIBUTES: FACTOR 2 AGRICULTURAL PRODUCTION GAP

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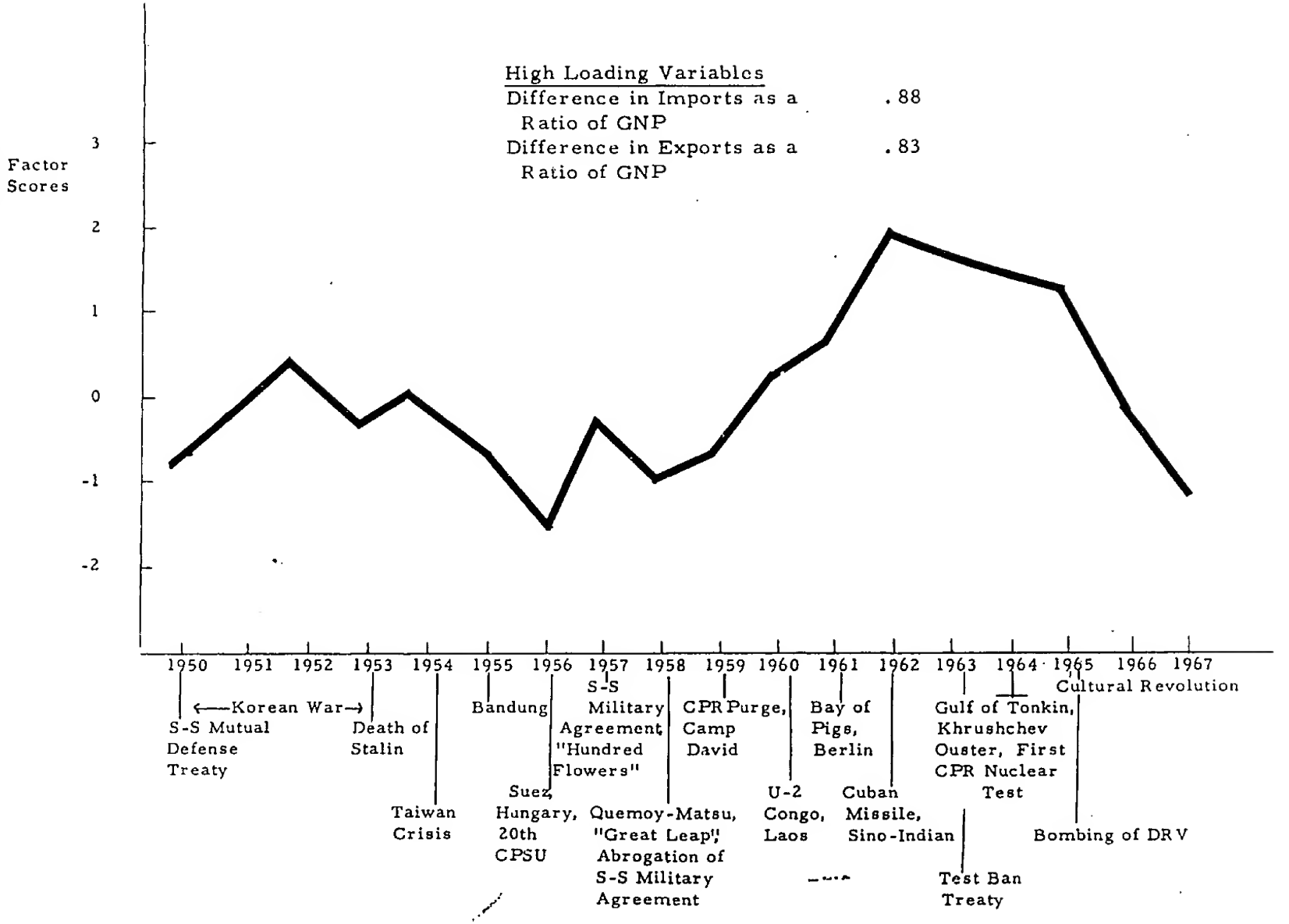

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FIGURE 30

DIFFERENCES BETWEEN THE SOVIETS AND CHINESE ON 9 ECONOMIC ATTRIBUTES: FACTOR 3
TRADE DEPENDENCY GAP

TABLE 31

Differences in Soviet and Chinese Military Attributes

TABLE OF POSITIVE EIGENVALUES

NO.	EIGENVALUE	PERCENT OF COMMUNALITY ALL (6) FACTORS Each	Cumulative
1	4.246	70.8	70.8
2	0.869	14.5	85.2
3	0.451	7.5	92.8
4	0.294	4.9	97.7
5	0.130	2.2	99.8
6	0.011	0.2	100.0

TRACE OF ORIGINAL MATRIX = 6.000
COMMUNALITY OVER 6 FACTORS = 6.000

TABLE 32

DIFFERENCES IN SOVIET AND CHINESE MILITARY ATTRIBUTES 1950 - 1967

		ROTATED FACTOR MATRIX		
FACTOR NUMBER		1 *	2 **	3 ***
SUM SQUARES OVER VARIABLES		3.060	1.117	1.388
PERCENT OF TOTAL VARIANCE		50.997	18.622	23.141
VARIABLE NO.	NAME	COMMUNALITY 3 FACTORS		
1	DEFNCBUD	0.801	0.859	-0.160	-0.193
2	DEFC/GNP	0.996	-0.276	+0.306	0.909
3	FIGHTERS	0.909	-0.917	+0.233	0.115
4	ARMFORCE	0.997	-0.221	+0.434	0.277
5	SUBMARIN	0.983	0.788	+0.243	-0.551
6	ICBMS	0.880	0.857	-0.113	-0.364

Factor Names:

* Nuclear Capability Gap

** Armed Forces Gap

*** Defense Allocation as a Percent of GNP

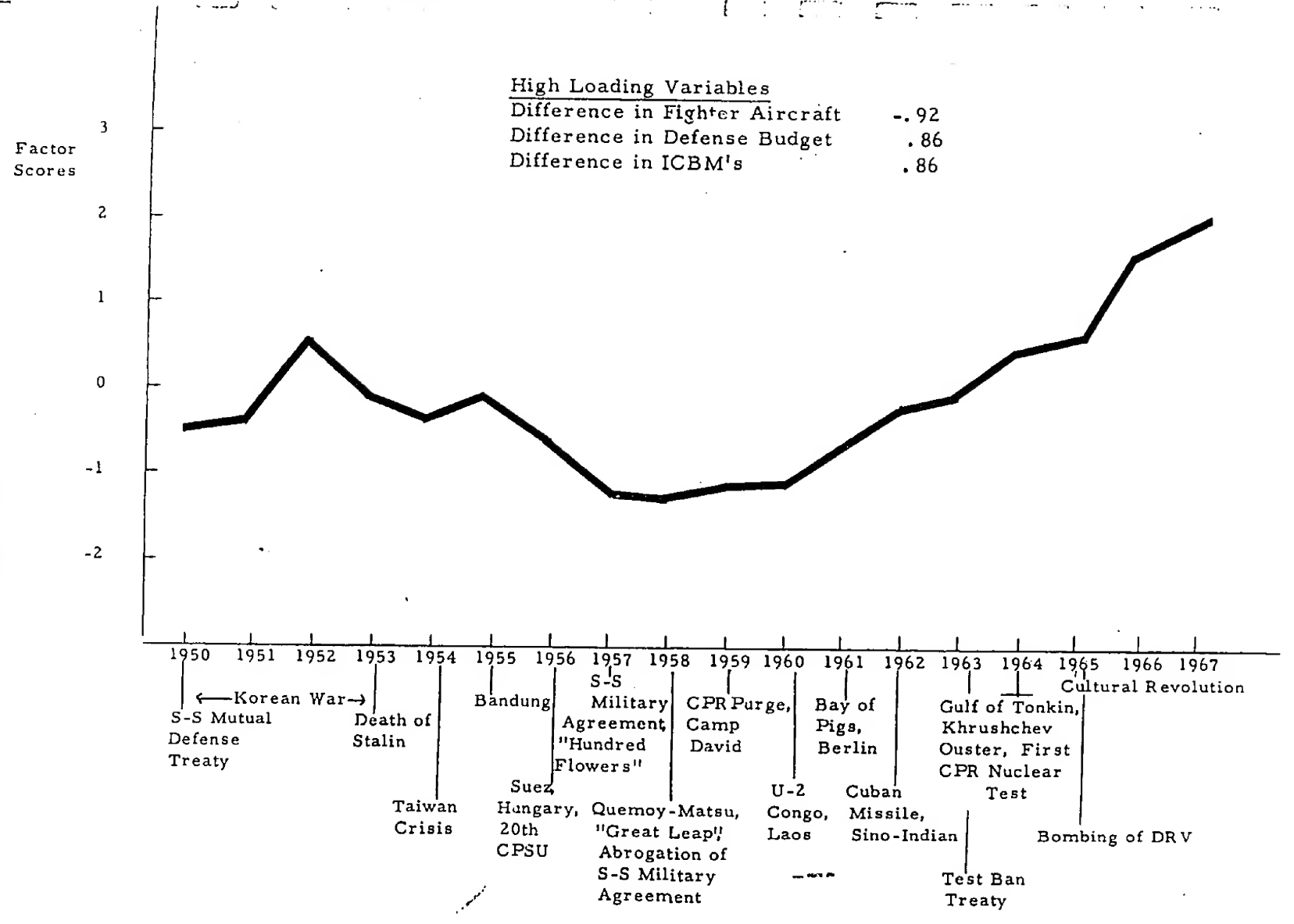

FIGURE 31

DIFFERENCE BETWEEN THE SOVIETS AND CHINESE ON 6 MILITARY ATTRIBUTES: FACTOR 1: NUCLEAR CAPABILITY GAP

(U) The second factor, the Armed Forces Gap is primarily a pattern of the gap between the Soviets and Chinese in total number of men under arms over time. This factor explains 14.5 percent of total variance. The factor scores are plotted in Figure 32. The first part of the pattern is explained by the demobilization of Chinese forces after the Korean War at the same time that the Soviets were increasing the total size of their armed forces. Since 1956, the pattern was mainly one of a narrowing gap as the Soviets decreased the numerical size of their armed forces.

(U) The third factor explains 7.5 percent of total variance and describes the gap between the Soviets and Chinese in Defense Allocation as a Percentage of GNP. The factor scores are plotted in Figure 33. The Soviets allocated their greatest percentage for defense in 1952 but spent increasingly less---percentage wise---through 1967. The Chinese, however, fluctuated till 1957 but slowly increased their defense allocation percentage through 1967. The result was a decrease in the gap between the Soviets and Chinese. It should be noted that the increase in Chinese defense allocation was due not only to a slightly increasing defense budget but also to an erratic and sometimes decreasing GNP.

C. SUMMARY OF FINDINGS FROM THE NATIONAL ATTRIBUTE ANALYSIS

(U) The major findings from the analyses of Soviet and Chinese national attributes are summarized as follows:

1. Industrialization is the most significant dynamic attribute pattern for both the Soviets and Chinese. It occurs in each analysis as the first and strongest factor, always characterized by a pattern of industrial growth over time.

2. The Nuclear Transition factor appears as the second strongest factor for the Soviets. It is characterized by diplomatic and conventional military behavior--for example, increasing numbers of bilateral treaties signed and rising fighter aircraft production--until 1960 when both proceed to fall off. Coupled with the decrease in Soviet conventional development after 1960 is an increase in their strategic development priorities as indexed by submarine and ICBM production.

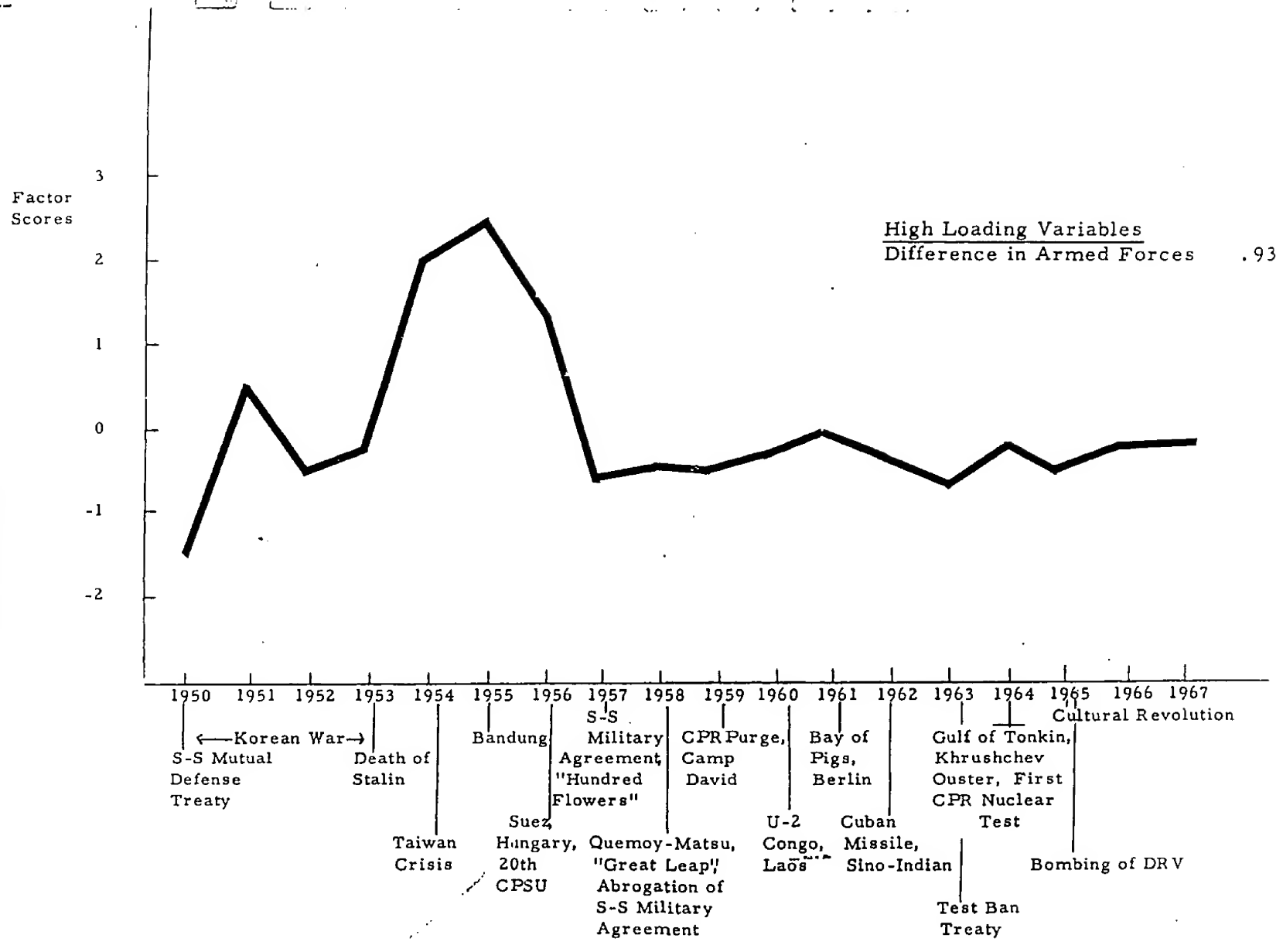

FIGURE 32

DIFFERENCE BETWEEN THE SOVIETS AND CHINESE ON 6 MILITARY ATTRIBUTES: FACTOR 2
ARMED FORCES GAP

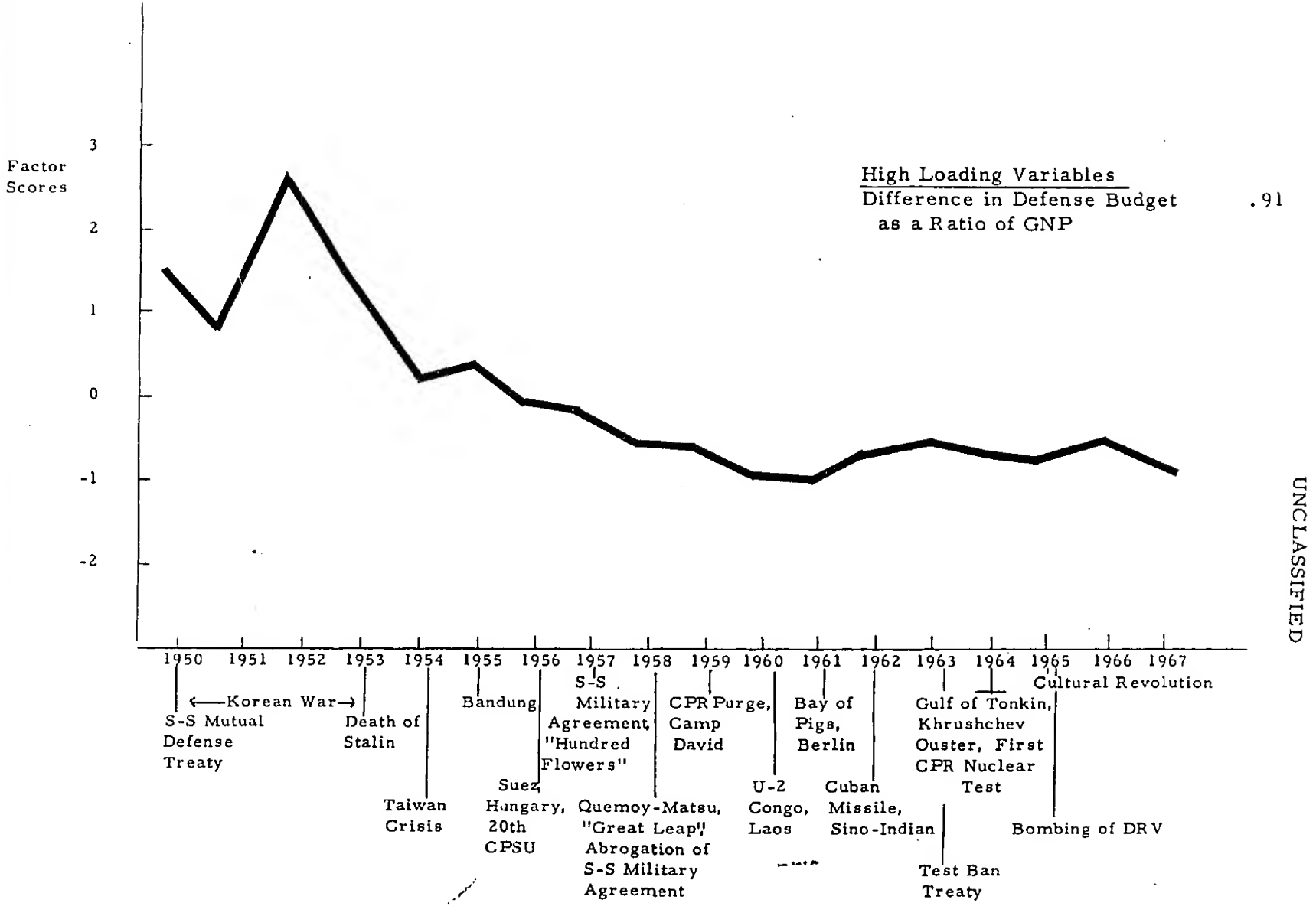

FIGURE 33

DIFFERENCES BETWEEN THE SOVIETS AND CHINESE ON 6 MILITARY ATTRIBUTES -FACTOR 3: DEFENSE ALLOCATION AS PERCENTAGE OF GNP GAP

3. When Soviet perceptions of the Chinese (derived from content analysis) were included in the analysis of their national attributes, a new pattern emerged. This new pattern evidenced a changing Soviet view of the Chinese as indexed by the weak, active, negative and threat potential variables. Moscow's perceptions of the Chinese were generally of a decreasing magnitude or intensity as measured by these variables until about 1957 when a transitional period lasting until 1960 occurs. In the post-1960 period a sharp upswing in magnitude is evidenced by all of the variables. This factor we call the Paper Tiger Syndrome. This pattern contradicts the hypothesis that as one nation perceives another nation as negative, he will also perceive that nation as stronger and more active -- this being a rationalization for his negative feelings. The analyses carried out in this study indicate that while the Soviets did perceive the Chinese as negative and active they did not at the same time perceive them as stronger.

4. A similar "paper tiger" pattern also appears in the analyses of the Chinese national attributes. The Chinese simultaneously perceived the Soviets as negative, threatening and weak. An interesting divergence in the two patterns is that while 1959 marked the point at which the Chinese perceptions of the USSR began an upswing in magnitude, the Soviets did not exhibit a similar pattern toward China until 1960.

5. The difference analysis and the 36 case analyses reveal that generally Soviet perceptions of the United States are independent of--that is not related to--Chinese views of the US across identical time frames. Furthermore, the attribute analysis revealed that changing Soviet perceptions of the CPR formed a pattern through the years quite unrelated to Soviet perceptions of the US. It should be noted that this finding contradicts our interpretation of Newcomb's model of interactive behavior which when applied to the Sino-Soviet relationship would hypothesize that the Soviet perception of China on the positive-negative dimensions should be related--either positively or negatively--to their view of the United States. A reason for the lack of support for the model may be due to the fact that we aggregated values per year over an 18-year period. We did not in this study examine Soviet perceptions of the US and China at critical points in time and at differing levels of tension--e.g., during periods of detente as compared to periods of high crisis. This caveat notwithstanding, it is extremely significant that at least in the long run there exists little relationship between Soviet and Chinese perceptions of each other and their perceptions of the US.

6. In the analyses of the absolute differences existing between the Soviets and Chinese on each of the national attribute variables, several relevant patterns emerged. The factors which emerged identified gaps between the two Communist powers in three areas: industrialization, nuclear capability, and in their perceptions of the United States. The gaps in two of these areas--industrialization and nuclear capability--are ever widening and have been steadily and rapidly increasing since 1957. On the other hand, the gap between Moscow's and Peking's perceptions of the US as indexed by the active and potential threat variables exhibit no consistent trend; rather it varies considerably over time.

SECTION V

SINO-SOVIET INTERACTION ANALYSIS

A. DESCRIPTION OF DATA

(U) The analysis of national attributes of the Soviet Union and Communist China and their differences on these attributes was reported in Section IV, and their dynamic patterns were delineated. We turn now to the analysis of the Sino-Soviet relationship as indexed by interactions across the same time period, 1950-1967. As noted earlier, it is our ultimate objective to predict from Soviet and Chinese national attributes to their interactions. It is therefore necessary that the dependent variable, fluctuations and patterns in interactions, be described for this period.

(U) The types of interactions between nations cover a wide spectrum of activity. A process of selection was therefore undertaken to choose the most important and relevant indicators of this type of behavior. The process was mainly influenced by three factors: (1) those variables that had been identified in earlier research as important indicators; (2) those variables considered important by virtue of the uniqueness of the dyadic relationship of the Soviets and Chinese itself; and (3) those variables which have high importance to policy planners.

(U) In a survey of previous research concerned with the interactions between nations, Rummel's work was found to be the most advanced and most relevant to this study. Through four factor analyses of four different samples of data, he determined that eight dimensions of dyadic behavior existed for 1955: salience, emigration and communication, UN voting, exports, foreign students, international organizations, official conflict behavior and diplomatic representation.[56] The indexing variables of these dimensions, that is, the measure that was central to the cluster of behaviors defined by a dimension, were considered an important element to include in the study. All of these variables that were applicable to an analysis of Sino-Soviet relations were included in our data set.

(U) Several variables that Rummel did not use were added to the study because of their special significance in providing a better understanding of Soviet and Chinese relations. For example, broadcasts by the Soviet Union to China and vice versa have been used by these countries as a media for accusations and bitter polemics. Soviet and Chinese broadcasts were, therefore, included as

[56] See Rummel, "Indicators of Cross-national and International Patterns," op. cit.

measures of hostility. It should be noted that a few variables deemed important to the analysis were not included due to the unavailability of data. In all, within the space of all behavior and a subspace of all Soviet and Chinese relations a set of 31 Sino-Soviet behavioral variables were finally selected.

(U) In addition to the 31 behavioral variables, 14 perceptual variables were included in the data set. As stated in Section IV, perceptual variables were added because of the important role that verbal and written communications have played in the Sino-Soviet relationship and because of the generally held belief that the perceptions of a nation's leadership influence the foreign policy of that nation.

(U) Data were collected for all of these 45 interaction variables by year for the period 1950 to 1967. Table 33 lists the 45 variable names and the 8 character computer acronyms for each. These 45 variables have been labeled the Sino-Soviet Interaction Set.

B. ANALYSES OF SINO-SOVIET INTERACTIONS

(U) Two factor analyses are performed on the data in this section. The complete set of 45 variables is first analyzed, the dimensions examined and plotted. The 14 perception variables are then deleted and the 31 remaining variables are re-analyzed and their dimensions examined and plotted.

1. Sino-Soviet Interaction Analysis - 45 Variables

(U) Statistics for the 45 Sino-Soviet interactions are presented in Table 34. The majority of the measures had an approximately normal distribution across time from 1950-1967, although measures of Soviet economic aid (Variables 1 and 2), types of Sino-Soviet treaties signed (Variables 8-13), measures of Sino-Soviet official visits (Variables 13-16), Sino-Soviet broadcasts (Variables 17 and 18) and a few perception variables are skewed. Table 35 shows the Pearson product-moment correlations between these 45 measures.

The correlations among the perception variables and the correlations between the perception variables and the other interactions are the most interesting. Several relationships are worthy of note:

(1) There are high correlations between Soviet perceptions of the Chinese as being active, negative and weak. There are also high correlations between Chinese perceptions of the Soviets as being active, negative and weak;

TABLE 33

SOVIET AND CHINESE INTERACTION AND PERCEPTION VARIABLES: ACRONYM TABLE

Variable Name	Eight Character Computer Code Name
Soviet Economic Aid to China	SUECAID
Soviet Relative Economic Aid to China	RSUECAID
Soviet Civil Technicians in China	SUCTCPR
Chinese Civil Technicians Trained in Soviet Union	CPRCTSU
Soviet Military Aid to China	SUMILAID
Chinese Students in the Soviet Union	CPRSTSU
Sino-Soviet Treaties	SSTREATY
Sino-Soviet Economic Treaties	S$ECONTR
Sino-Soviet Scientific and Technical Treaties	S$S-TTR
Sino-Soviet Diplomatic and Political Treaties	SSD-PTR
Sino-Soviet Cultural Treaties	SSCULTR
Sino-Soviet Communications Treaties	SSCOMMTR
Soviet Official Visits to China	SUOFVCPR
Chinese Official Visits to the Soviet Union	CPROFVSU
Soviet Official Visit Days to China	SUOVDCPR
Chinese Official Visit Days to the Soviet Union	CPROVDSU
Soviet Broadcast Hours Per Week to China	SUBRCCPR
Chinese Broadcast Hours Per Week to the Soviet Union	CPRBRCSU
Soviet Cultural Delegations to China	SUCLDCPR
Chinese Cultural Delegations to the Soviet Union	CPRCLDSU
Soviet Exports to China	SUEXPCPR
Soviet Imports from China	SUIMPCPR
Relative Soviet Exports to China	RSUEXCPR
Relative Soviet Imports from China	RSUIMCPR
Relative Chinese Exports to the Soviet Union	RCPREXSU
Relative Chinese Imports from the Soviet Union	RCPRIMSU
Soviet Export of Petroleum to China	SUPETCPR
Relative Soviet Export of Petroleum to China	RSUPTCPR
Soviet Military Forces in Border Area	SUFORBOR
Chinese Military Forces in Border Area	CPRFORBR
Border Incidents	BORINCID
China Perceived as Strong by the Soviet Union	SU ST CC
China Perceived as Weak by the Soviet Union	SU WK CC
China Perceived as Active by the Soviet Union	SU AC CC

TABLE 33 (CONTINUED)

SOVIET AND CHINESE INTERACTION AND PERCEPTION VARIABLES: ACRONYM TABLE (CONTINUED)

Variable Name	Eight Character Computer Code Name
China Perceived as Passive by the Soviet Union	SU PA CC
China Perceived as Positive by the Soviet Union	SU PO CC
China Perceived as Negative by the Soviet Union	SU NG CC
Perceived Threat from China by the Soviet Union	SU TP CC
Soviet Union Perceived as Strong by China	CC ST SU
Soviet Union Perceived as Weak by China	CC WK SU
Soviet Union Perceived as Active by China	CC AC SU
Soviet Union Perceived as Passive by China	CC PA SU
Soviet Union Perceived as Positive by China	CC PO SU
Soviet Union Perceived as Negative by China	CC NG SU
Perceived Threat from the Soviet Union by China	CC TP SU

TABLE 34

SOVIET AND CHINESE INTERACTIONS WITH CONTENT ANALYSIS 1950 - 1967 45 VARIABLES

STATISTICS

VARIABLE NO.	NAME	MEAN	SE	ST DEV	SE	SKEW	KURTOSIS
1	SUECAID	224.000	103.688	439.913	1194803.000	2.563**	0.375
2	RSUECAID	19.167	8.208	34.822	7486.426	1.919**	0.214
3	SUCTCPR	0.611	0.115	0.487	1.467	-0.543	0.067
4	CPRCTSU	0.667	0.111	0.471	1.372	-0.842	0.083
5	SUMILAID	0.556	0.117	0.497	1.524	-0.266	0.058
6	CPRSTSU	2054.944	506.835	2150.320	28547568.000	0.705	0.092
7	SSTREATY	11.611	1.395	5.917	216.184	0.605	0.106
8	SSECONTR	3.722	0.532	2.256	31.422	1.070*	0.169
9	SSS-TTR	2.278	0.470	1.995	24.562	1.742**	0.262
10	SSD-PTR	1.000	0.324	1.374	11.662	1.682**	0.247
11	SSCULTR	1.778	0.389	1.652	16.845	1.306*	0.197
12	SSCOMMTR	2.444	0.410	1.739	18.674	1.130*	0.197
13	SUCFVCPR	0.444	0.180	0.762	3.582	1.571**	0.167
14	CPRUFVSU	0.833	0.252	1.067	7.031	1.053*	0.130
15	SULVDCPR	2.667	1.336	5.667	198.252	3.130**	0.523
16	CPRUVDSU	9.889	4.469	18.959	2219.115	2.940**	0.472
17	SUBRCCPR	44.500	8.247	34.988	7557.770	2.839**	0.490
18	CPRBRCSU	37.556	17.867	75.803	35475.656	3.253**	0.559
19	SUCLDCPR	21.278	3.476	14.749	1343.045	0.633	0.106
20	CPRCLDSU	36.778	5.829	24.729	3775.409	0.143	0.093
21	SUEXPCPR	486.278	60.897	258.364	412124.750	0.092	0.092
22	SUIMPCPR	550.444	55.631	236.021	343926.625	0.653	0.149
23	RSUEXCPR	12.889	2.044	8.672	464.342	-0.212	0.075
24	RSUIMCPR	13.333	1.552	6.583	267.538	-0.402	0.090
25	RCPREXSU	37.111	2.995	12.706	996.677	-0.864	0.123
26	RCPRIMSU	38.111	5.141	21.812	2937.355	-0.070	0.092
27	SUPETCPR	1870.444	171.797	728.872	3279941.000	0.011	0.114
28	RSUPTCPR	13.111	2.446	10.376	664.652	1.167*	0.164
29	SUFORBOR	8.556	0.568	2.409	35.824	-0.110	0.089
30	CPRFORBR	2.778	0.201	0.853	4.497	0.526	0.084
31	BORINCID	0.889	0.247	1.048	6.784	0.955	0.128
32	SU ST CC	3844.222	81.073	343.962	730441.187	0.476	0.130
33	SU WK CC	239.556	22.818	96.807	57859.691	0.776	0.147
34	SU AC CC	3134.889	78.120	331.437	678212.312	0.383	0.129
35	SU PA CC	877.000	40.006	169.730	177859.750	1.619**	0.284
36	SU PO CC	3035.833	149.487	634.219	2483370.000	-0.808	0.127
37	SU NG CC	966.000	123.534	524.112	1695942.000	0.779	0.106
38	SU TP CC	11739.164	1581.634	6710.305	2780C1920.000	0.867	0.121
39	CC ST SU	3769.611	76.936	326.411	657797.125	0.100	0.139
40	CC WK SU	281.833	32.885	139.520	120180.312	0.764	0.125
41	CC AC SU	2998.278	84.150	357.018	786945.125	-0.590	0.125
42	CC PA SU	817.389	35.061	148.753	136614.375	-0.335	0.104
43	CC PO SU	3064.500	188.459	799.564	3947018.000	-0.799	0.160
44	CC NG SU	990.944	157.163	666.873	2745672.000	1.525**	0.185
45	CC TP SU	11298.441	1833.817	7780.227	373721088.000	1.546**	0.204

SE - SKEW = 0.536
SE - KURTOSIS = 1.038

* SIGNIFICANT AT .05 LEVEL
** SIGNIFICANT AT .01 LEVEL

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TABLE 35

Soviet and Chinese Interactions with Content Analysis 1950-1967 45 Variables

CORRELATIONS

NO.	VARIABLE	1 SUECAID	2 RSUECAID	3 SUCTCPR	4 CPRCTSU	5 SUMILAID	6 CPRSTSU	7 SSTREATY	8 SSECONTR	9 SSS-TTR	10 SSD-PTR	11 SSCULTR	12 SSCOMMTR
1	SUECAID	1.0000											
2	RSUECAID	0.8183	1.0000										
3	SUCTCPR	0.3772	0.4162	1.0000									
4	CPRCTSU	0.3601	0.3892	0.8864	1.0000								
5	SUMILAID	0.2237	0.3542	0.8919	0.7906	1.0000							
6	CPRSTSU	0.3101	0.1618	0.5869	0.6039	0.4708	1.0000						
7	SSTREATY	0.0606	0.1284	0.4868	0.6108	0.5458	0.4922	1.0000					
8	SSECONTR	0.1880	0.3415	0.3059	0.4876	0.4350	0.0428	0.7784	1.0000				
9	SSS-TTR	0.0909	0.1233	0.4539	0.5121	0.5169	0.7188	0.5269	0.1900	1.0000			
10	SSD-PTR	-0.1067	-0.0836	0.5804	0.5145	0.5694	0.3170	0.7924	0.5555	0.2837	1.0000		
11	SSCULTR	-0.0833	-0.2099	-0.0383	0.2616	-0.1203	0.5870	0.4516	0.1176	0.3391	0.0979	1.0000	
12	SSCOMMTR	-0.0895	-0.0333	0.1383	0.0452	0.1643	-0.0070	0.5026	0.3208	-0.2438	0.4881	0.1117	1.0000
		1	2	3	4	5	6	7	8	9	10	11	12
13	SUDEVCPR	-0.1429	-0.1033	0.1662	0.1031	0.2283	0.4009	0.3218	0.0718	0.2478	0.2653	0.3876	0.2283
14	CPRDEVSU	-0.1603	-0.2773	-0.0178	0.2239	-0.1397	0.1989	0.4736	0.2808	-0.1348	0.3798	0.4723	0.4590
15	SUDVPCPR	-0.1293	-0.1016	0.2547	0.2089	0.3025	0.5056	0.4518	0.0971	0.1655	0.3923	0.5025	0.5111
16	CPRDVDSU	-0.0583	-0.1621	0.2478	0.2880	0.0891	0.0415	0.4849	0.3539	-0.1123	0.7292	0.1074	0.3739
17	SUBRCCPR	-0.1763	-0.1855	-0.5228	-0.6501	-0.4154	-0.4356	-0.5494	-0.4740	-0.3363	-0.3374	-0.4018	-0.1360
18	CPRBRCSU	-0.2523	-0.2727	-0.6211	-0.7037	-0.5539	-0.4558	-0.5588	-0.4611	-0.3405	-0.3605	-0.3123	-0.2206
19	SUCLDCPR	0.2416	0.1441	0.5791	0.5806	0.4338	0.9516	0.4214	0.0391	0.6432	0.2686	0.5544	-0.0460
20	CPRCLDSU	0.2324	0.3004	0.8177	0.8277	0.7606	0.8975	0.5959	0.2787	0.7041	0.4561	0.4150	0.0462
21	SULXPCPR	0.5126	0.5263	0.8649	0.8401	0.7055	0.7375	0.4489	0.2635	0.6247	0.3556	0.2015	-0.0894
22	SUIMPCPR	0.2204	0.1197	0.4394	0.4542	0.2902	0.8656	0.3143	-0.0353	0.6083	0.1209	0.5684	-0.1067
23	RSUCXCPR	0.4591	0.5727	0.9359	0.8742	0.8910	0.3962	0.4906	0.4698	0.4482	0.5034	-0.1762	0.0733
24	SUDIACPR	0.7897	0.3947	0.9233	0.8772	0.8775	0.7471	0.5453	0.3205	0.6276	0.4483	0.1754	0.0890

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TABLE 35 Cont'd.

SOVIET AND CHINESE INTERACTIONS WITH CONTENT ANALYSIS 1950 - 1967 45 VARIABLES

CORRELATIONS

NO.	VARIABLE	1 SUECAID	2 RSUECAID	3 SUCTCPR	4 CPRCTSU	5 SUMILAID	6 CPRSTSU	7 SSTREATY	8 SSECONTR	9 SSS-TTR	10 SSD-PTR	11 SSCULTR	12 SSCCMMTR
25	RCPREXSU	0.3990	0.4545	0.8411	0.8503	0.7822	0.6343	0.5200	0.3868	0.4920	0.3245	0.2156	0.1838
26	RCPRIMSU	0.3795	0.4772	0.8870	0.8519	0.8452	0.2873	0.5599	0.5629	0.3339	0.6042	-0.1612	0.1876
27	SUPETCPR	0.0413	-0.0202	0.5444	0.7298	0.3719	0.4448	0.3743	0.2983	0.3041	0.2800	0.4377	-0.0744
28	RSUPTCPR	-0.2281	-0.2837	-0.3100	-0.0947	-0.3137	0.0815	0.1699	0.1675	-0.0176	-0.1364	0.4844	0.1358
29	SUFORBOR	-0.2453	-0.1051	-0.3437	-0.4729	-0.3043	-0.9024	-0.5461	-0.1965	-0.6334	-0.2349	-0.6950	-0.0855
30	CPRFORBR	-0.3291	-0.4212	-0.8753	-0.8745	-0.8879	-0.4925	-0.5891	-0.4937	-0.4206	-0.5210	-0.0350	-0.2329
31	BORINCTD	-0.3084	-0.3907	-0.8455	-0.7495	-0.8414	-0.4017	-0.5175	-0.4124	-0.3838	-0.5399	0.0820	-0.2472
32	SU ST CC	0.2264	0.4147	0.6386	0.6179	0.6357	0.1029	0.1568	0.2900	0.2407	0.1341	-0.1795	-0.0928
33	SU WK CC	-0.2915	-0.2950	(-0.7265)	(-0.8505)	-0.6266	-0.4612	-0.3127	-0.2766	-0.3581	-0.1800	-0.2542	0.1167
34	SU AC CC	-0.1779	-0.0970	-0.5807	-0.6534	-0.4176	-0.6640	-0.5205	-0.3012	-0.3106	-0.3916	-0.5367	-0.2039
35	SU PA CC	-0.0851	-0.1779	-0.6318	(-0.7186)	-0.6034	-0.2347	-0.2058	-0.2160	-0.3512	-0.2610	0.0186	0.2430
36	SU PO CC	0.1512	0.1939	0.6490	(0.7909)	0.5306	0.4766	0.4762	0.3519	0.2615	0.2965	0.4395	0.2086
		1	2	3	4	5	6	7	8	9	10	11	12
37	SU NG CC	-0.3685	-0.4001	(-0.7756)	(-0.8967)	-0.6442	-0.6470	-0.4476	-0.2993	-0.4243	-0.2464	-0.3866	-0.0600
38	SU TP CC	-0.3437	-0.3537	(-0.7422)	(-0.8674)	-0.6040	-0.6717	-0.4844	-0.3192	-0.4227	-0.2698	-0.4360	-0.0910
39	CC ST SU	0.0524	-0.0137	0.2466	0.4021	0.0931	0.3224	0.2282	0.1077	0.1509	0.1116	0.3834	-0.0247
40	CC WK SU	-0.2139	-0.2258	(-0.7157)	(-0.7433)	-0.5909	-0.3745	-0.4102	-0.3727	-0.1252	-0.3764	-0.1918	-0.2401
41	CC AC SU	0.0141	-0.1680	-0.5414	-0.5005	-0.5066	0.1953	-0.3254	-0.5052	0.1612	-0.4700	0.3005	-0.3507
42	CC PA SU	-0.4416	-0.2819	-0.3013	-0.4743	-0.1442	-0.2184	-0.1743	-0.2288	-0.0343	-0.0538	-0.2588	0.0985
43	CC PO SU	0.2984	0.3219	0.6681	(0.7345)	0.5821	0.3188	0.4091	0.4361	0.1436	0.2549	0.1612	0.2617
44	CC NG SU	-0.3523	-0.3316	(-0.7651)	(-0.8405)	-0.6776	-0.5654	-0.5709	-0.4639	-0.3956	-0.4039	-0.2943	-0.1881
45	CC TP SU	-0.3469	-0.3477	(-0.7950)	(-0.8594)	(-0.7155)	-0.5121	-0.5859	-0.4971	-0.3696	-0.4477	-0.2563	-0.2039

TABLE 35 Cont'd.

SOVIET AND CHINESE INTERACTIONS WITH CONTENT ANALYSIS 1950 - 1967 45 VARIABLES

CORRELATIONS

	NO. VARIABLE	13 SUOFVCPR	14 CPROFVSU	15 SUOVOCPR	16 CPROVOSU	17 SUBRCCPR	18 CPRBRCSU	19 SUCLDCPR	20 CPRCLOSU	21 SUEXPCPR	22 SUIMPCPR	23 RSUEXCPR	24 RSUIMCPR
13	SUOFVCPR	1.0000											
14	CPROFVSU	0.0911	1.0000										
15	SUOVOCPR	0.8452	0.3583	1.0000									
16	CPROVOSU	-0.0427	0.6361	0.1186	1.0000								
17	SUBRCCPR	-0.1209	-0.3831	-0.1317	-0.2776	1.0000							
18	CPRBRCSU	-0.0870	-0.2957	-0.1517	-0.2316	0.9604	1.0000						
19	SUCLDCPR	0.4341	0.2077	0.4850	0.0164	-0.5465	-0.5258	1.0000					
20	CPRCLOSU	0.3710	0.1312	0.4728	0.0504	-0.5764	-0.6303	0.8906	1.0000				
21	SUEXPCPR	0.2455	-0.0085	0.2353	0.0359	-0.5782	-0.6062	0.7645	0.8732	1.0000			
22	SUIMPCPR	0.4819	0.1699	0.4341	-0.1100	-0.5012	-0.4620	0.9488	0.7807	0.7249	1.0000		
23	RSUEXCPR	-0.0009	-0.1161	0.0332	0.1898	-0.5147	-0.6194	0.3777	0.6897	0.8186	0.2622	1.0000	
24	RSUIMCPR	0.2585	0.0158	0.3232	0.0519	-0.6305	-0.7225	0.7492	0.9291	0.9092	0.6558	0.8609	1.0000
		13	14	15	16	17	18	19	20	21	22	23	24
25	RCPREXSU	0.2015	0.0915	0.2675	-0.0255	-0.6979	-0.7787	0.6775	0.8508	0.8612	0.6289	0.8174	0.9468
26	RCPRINSU	-0.0565	0.0557	0.0179	0.3656	-0.5690	-0.6541	0.2715	0.5941	0.7163	0.1395	0.9643	0.7852
27	SUPETCPR	0.0742	0.4557	0.0782	0.2392	-0.7803	-0.6936	0.5762	0.5957	0.6376	0.5690	0.4874	0.6188
28	RSUPTCPR	-0.1749	0.5335	-0.0258	0.0613	-0.4261	-0.2923	0.1915	-0.0103	-0.1842	0.1876	-0.3283	-0.1022
29	SUFORBOR	-0.4979	-0.2882	-0.5318	0.0014	0.5287	0.5003	-0.9176	-0.7860	-0.6069	-0.9010	-0.2204	-0.6248
30	CPRFORBR	-0.0190	-0.1017	-0.1761	-0.2041	0.5656	0.6820	-0.4453	-0.7552	-0.6931	-0.2588	-0.8890	-0.8570
31	BORINCIO	-0.1469	0.0828	-0.2494	-0.1971	0.5453	0.6797	-0.3969	-0.6632	-0.6902	-0.3099	-0.8386	-0.8159
32	SU ST CC	0.0779	-0.2570	-0.0934	-0.2308	-0.4045	-0.4788	0.1739	0.4420	0.6398	0.2220	0.7404	0.6265
33	SU WA CC	-0.1186	-0.0658	-0.1294	-0.0327	(0.7235)	(0.7511)	-0.4871	-0.6709	-0.6984	-0.3887	-0.7065	-0.7474
34	SU AC CC	-0.4665	-0.5118	-0.4934	-0.3022	(0.7599)	0.6885	(-0.7576)	(-0.7094)	-0.6496	-0.6857	-0.4332	-0.6666
35	SU PA CC	0.0941	0.1718	0.0400	-0.0355	0.3173	0.3896	-0.2132	-0.4944	-0.5319	-0.1308	-0.6480	-0.5504
36	SU PU CC	0.2335	0.4118	0.3173	0.1705	(-0.7585)	(-0.7476)	0.5232	0.6568	0.6269	0.4268	0.5934	0.6869

TABLE 35 Cont'd.

SOVIET-ARAB CHINESE INTERACTIONS WITH CONTENT ANALYSIS 1950 - 1967 45 VARIABLES

CORRELATIONS

		13	14	15	16	17	18	19	20	21	22	23	24
NO.	VARIABLE	SUDFVCPR	CPRDFVSU	SUDVDCPR	CPRDVDSU	SUBRCCPR	CPRBRCSU	SUCLDCPR	CPRCLDSU	SUEXPCPR	SUIMPCPR	RSUEXCPR	RSUIMCPR
37	SU NG CC	-0.0792	-0.2833	-0.2510	-0.0864	(0.7354)	(0.7762)	-0.6732	(-0.8190)	(-0.8134)	-0.5703	(-0.7266)	(-0.8423)
38	SU TP CC	-0.1064	-0.3577	-0.2840	-0.1468	(0.7876)	(0.8015)	(-0.7109)	(-0.8138)	(-0.7863)	-0.5962	-0.6783	-0.8230
39	CC ST SU	-0.2147	0.5736	-0.0979	0.3234	-0.5814	-0.4962	0.3958	0.3304	0.3116	0.3354	0.2228	0.3319
40	CC NR SU	-0.0829	-0.3841	-0.2173	-0.2476	(0.7735)	(0.7679)	-0.4777	-0.6068	-0.6549	-0.3803	-0.6695	(-0.7182)
41	CC AC SU	0.1188	-0.1234	0.0458	-0.4329	0.5195	0.5314	0.1097	-0.1468	-0.2388	0.2406	-0.6105	-0.3556
42	CC PA SU	0.2863	-0.4430	0.2395	-0.2136	0.4941	0.4754	-0.2199	-0.2670	-0.4008	-0.1959	-0.3694	-0.3447
43	CC PJ SU	-0.0841	0.2666	0.0522	0.0846	(-0.7563)	(-0.7935)	0.3888	0.5691	0.6053	0.3072	0.6871	(0.7150)
44	CC NG SU	-0.0274	-0.3328	-0.1894	-0.2113	(0.8547)	(0.8860)	-0.6075	(-0.7541)	(-0.7586)	-0.4948	(-0.7476)	(-0.8386)
45	CC TP SU	-0.1077	-0.2946	-0.2200	-0.2423	(0.8637)	(0.9001)	-0.5460	(-0.7288)	(-0.7552)	-0.4319	(-0.7882)	(-0.8350)

TABLE 35 Cont'd.

SOVIET AND CHINESE INTERACTIONS WITH CONTENT ANALYSIS 1950 - 1967 45 VARIABLES

CORRELATIONS

NO.	VARIABLE	25 RCPREXSU	26 RCPRIMSU	27 SUPETCPR	28 RSUPTCPR	29 SUFORBOR	30 CPRFORBR	31 BORINCID	32 SU ST CC	33 SU HK CC	34 SU AC CC	35 SU PA CC	36 SU PD CC
25	RCPREXSU	1.0000											
26	RCPRIMSU	0.7563	1.0000										
27	SUPETCPR	0.6910	0.5235	1.0000									
28	RSUPTCPR	0.0420	-0.2185	0.3568	1.0000								
29	SUFORBOR	-0.6010	-0.1302	-0.4765	-0.3248	1.0000							
30	CPRFORBR	-0.8329	-0.8880	-0.5120	0.0906	0.3303	1.0000						
31	BORINCID	-0.7666	-0.8086	-0.3978	0.2361	0.3105	0.7176	1.0000					
32	SU ST CC	(0.7049)	0.6743	0.5162	-0.3557	-0.0354	-0.5996	-0.5631	1.0000				
33	SU HK CC	(-0.7635)	-0.6684	(-0.7341)	0.0199	0.3746	(0.7311)	0.6280	-0.6469	1.0000			
34	SU AC CC	-0.6856	-0.4575	(-0.7715)	-0.3034	(0.7019)	0.5697	0.3393	-0.2969	0.6420	1.0000		
35	SU PA CC	-0.4933	-0.5768	-0.4646	0.3198	0.0735	0.5212	0.6801	-0.5813	0.7227	0.1092	1.0000	
36	SU PD CC	(0.7705)	0.6192	(0.7950)	0.1972	-0.4473	(-0.7462)	-0.4413	0.5563	-0.8577	-0.8456	-0.4037	1.0000
		25	26	27	28	29	30	31	32	33	34	35	36
37	SU NG CC	(-0.8789)	-0.6870	(-0.7743)	-0.1277	(0.5481)	(0.7977)	(0.6249)	-0.5609	(0.8774)	(0.7370)	0.5891	-0.8787
38	SU TP CC	(-0.8575)	-0.6598	(-0.7951)	-0.2402	(0.5996)	(0.7804)	(0.5789)	-0.4705	0.8525	0.8110	0.4919	-0.8956
39	CC ST SU	0.3931	0.3322	0.6741	0.5861	-0.2888	-0.4004	-0.0095	0.0927	-0.3506	-0.6219	0.0794	0.5808
40	CC HK SU	(-0.7671)	(-0.7379)	(-0.8129)	-0.2420	0.3253	(0.7462)	0.5613	-0.5681	(0.7494)	0.7939	0.3599	-0.8702
41	CC AC SU	-0.4220	(-0.7359)	-0.4254	-0.0325	-0.2132	0.5897	0.5676	-0.4623	0.5191	0.3320	0.4042	-0.5403
42	CC PA SU	-0.4177	-0.4535	-0.5844	-0.2144	0.1371	0.4562	0.0548	-0.3591	0.4357	0.4956	0.0380	-0.5628
43	CC PD SU	(0.8448)	(0.7359)	(0.7495)	0.2922	-0.3129	(-0.7814)	(-0.5974)	0.6324	-0.7579	-0.6507	-0.3983	0.8346
44	CC NG SU	(-0.8698)	(-0.7752)	(-0.7825)	-0.2502	0.5117	(0.8239)	(0.6730)	-0.5295	(0.7978)	(0.7594)	0.4576	-0.8358
45	CC TP SU	(-0.8579)	(-0.8216)	(-0.7572)	-0.1413	0.4506	(0.8443)	(0.7080)	-0.5939	(0.8479)	0.7651	0.4917	-0.8693

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TABLE 35 Cont'd.

SOVIET AND CHINESE INTERACTIONS WITH CONTENT ANALYSIS 1950 - 1967 45 VARIABLES

CORRELATIONS

		37	38	39	40	41	42	43	44	45
NO.	VARIABLE	SU NG CC	SU TP CC	CC ST SU	CC WK SU	CC AC SU	CC PA SU	CC PO SU	CC NG SU	CC TP SU
37	SU NG CC	1.0000								
38	SU TP CC	0.9862	1.0000							
39	CC ST SU	-0.5272	-0.6067	1.0000						
40	CC WK SU	0.8299	0.8574	-0.6431	1.0000					
41	CC AC SU	0.4043	0.4151	-0.2517	0.6796	1.0000				
42	CC PA SU	0.5395	0.5568	-0.7754	0.6184	0.1984	1.0000			
43	CC PO SU	-0.8173	-0.8223	0.5815	-0.9229	-0.6650	-0.6115	1.0000		
44	CC NG SU	0.9146	0.9340	-0.5939	0.9145	0.5404	0.6045	-0.8977	1.0000	
45	CC TP SU	0.9464	0.9096	-0.5260	0.9160	0.6125	0.5856	-0.8868	0.9804	1.0000

(2) There are high correlations between Soviet perceptions of the Chinese as negative and threatening and Chinese views of the Soviets as negative and threatening;

(3) There are fairly high correlations between Chinese perceptions of the Soviets as negative and threatening, deployment of Chinese military forces to the Sino-Soviet border, and border incidents;

(4) There are only moderate correlations between Soviet perceptions of the Chinese as negative and threatening and actual deployment of Soviet troops to the border and border incidents. Moscow's behavior thus would not seem to correspond as highly to their perceptions as does that of the Chinese. Indeed, there is a higher correlation between Soviet perceptions of the Chinese as threatening and Chinese deployment of troops to the border.

(U) A factor analysis was performed on the 45 variable correlation matrix. The table of positive eigenvalues is presented in Table 36. Five factors are sufficient to explain 83.8 percent of the total variance in these 45 variables. These five factors were rotated to an orthogonal simple structure. The rotated factor matrix is shown in Table 37.

(U) The predominant factor, which we named Sino-Soviet Cooperation, Mutual Threat Perception and Conflict, accounts for almost 34 percent of the total variance. This factor has negative loadings of "relative Soviet exports from China" and "Soviet civil technicians in China" and positive loadings of "Soviet and Chinese threat perceptions" of each other and "border incidents." The plot of scores for this factor is presented in Figure 34. A positive slope in the pattern indicates increased hostility and decreased cooperation.

(U) Note the period between 1954 and 1958. This peak in hostility may have been caused by Soviet and Chinese differences over the handling of the Taiwan Straits incidents. Between 1958 and 1959, the hostility temporarily decreased, but over all from 1959 onward the conflict has gradually increased. This pattern basically describes that phenomenon we have called the Sino-Soviet dispute, those interactions between the Soviets and Chinese which manifest the steady trend of decreasing cooperation and increasing hostility.

(U) Included in "decreasing cooperation" are measures of Chinese trade dependency on the Soviet Union. The growing Chinese independency from the Soviet Union has been mentioned as an important element in the dispute. This generalization is

TABLE 36

Sino- Soviet Interactions - 45 Variables

TABLE OF POSITIVE EIGENVALUES

NO.	EIGENVALUE	PERCENT OF COMMUNALITY ALL (18) FACTORS Each	Cumulative
1	22.210	49.4	49.4
2	5.589	12.4	61.8
3	4.417	10.0	71.7
4	3.580	8.0	79.7
5	1.861	4.1	83.8
6	1.613	3.6	87.4
7	1.274	2.8	90.3
8	0.986	2.2	92.4
9	0.837	1.9	94.3
10	0.767	1.7	96.0
11	0.492	1.1	97.1
12	0.405	0.9	98.0
13	0.292	0.6	98.6
14	0.234	0.5	99.1
15	0.164	0.4	99.5
16	0.151	0.3	99.8
17	0.094	0.2	100.0
18	0.000	0.0	100.0

TRACE OF ORIGINAL MATRIX = 45.000
COMMUNALITY OVER 18 FACTORS = 45.000

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TABLE 37

SOVIET AND CHINESE INTERACTIONS WITH CONTENT ANALYSIS 1950 - 1967 45 VARIABLES

ROTATED FACTOR MATRIX

	FACTOR NUMBER	1 *	2 **	3 ***	4 ****	5 *****
	SQUARES OVER VARIABLES	15.243	8.015	7.200	4.417	2.850
	ENCENT OF TOTAL VARIANCE	33.874	17.812	16.001	9.816	6.332
VARIABLE NO.	NAME	COMMUNALITY 5 FACTORS					
1	SUECAID	0.836	-0.205	-0.126	+0.047	-0.068	+0.876
2	RSUECAID	0.787	-0.353	-0.027	-0.083	-0.026	+0.809
3	SUCTCPR	0.924	-0.867	-0.303	+0.012	+0.208	+0.191
4	CPRCTSU	0.904	-0.815	-0.319	+0.263	+0.197	+0.174
5	SUMILAID	0.902	-0.854	-0.260	-0.160	+0.257	+0.112
6	CPRSTSU	0.931	-0.259	-0.894	+0.176	+0.033	+0.172
7	SSTREATY	0.848	-0.306	-0.409	+0.153	+0.747	+0.079
8	SSECOTR	0.595	-0.330	0.037	+0.151	+0.632	+0.229
9	SSS-TTR	0.585	-0.334	-0.669	-0.077	-0.060	+0.128
0	SSC-PTR	0.839	-0.372	-0.186	-0.068	+0.807	-0.101
1	SSCULTR	0.789	+0.194	-0.653	+0.524	+0.117	-0.190
2	SSCOMMTR	0.618	+0.009	-0.001	+0.043	+0.776	-0.102
3	SUCFVCPR	0.659	-0.033	-0.659	-0.221	+0.221	-0.354
4	CPRUFVSU	0.860	+0.197	-0.144	+0.687	+0.544	-0.174
5	SUCVTCPR	0.747	-0.033	-0.665	-0.099	+0.432	-0.328
6	CPRCVOSU	0.626	-0.023	0.117	+0.237	+0.744	-0.040
7	SUAFCCPR	0.786	+0.523	0.250	-0.641	-0.196	-0.012
8	CPRAFCSU	0.770	+0.620	0.235	-0.525	-0.218	-0.086
9	SUCLCCPR	0.934	-0.292	-0.874	+0.279	-0.035	+0.083
0	CPRCLOSU	0.956	-0.611	-0.750	+0.150	+0.102	+0.129
1	SUEXPCPR	0.918	-0.704	-0.541	+0.135	-0.023	+0.333
2	SUIMPCPR	0.906	-0.796	-0.877	+0.265	-0.158	+0.062
3	RSUEXCPR	0.980	-0.901	-0.098	-0.006	+0.192	+0.348
4	RSUIMCPR	0.964	-0.790	-0.519	+0.131	+0.101	+0.209
5	RCPREXSU	0.906	-0.773	-0.421	+0.283	+0.077	+0.213
6	RCPRIMSU	0.966	-0.860	0.035	+0.118	+0.355	+0.293
7	SUFETCPR	0.874	-0.562	-0.250	+0.686	-0.020	-0.158
8	RSUFTCPR	0.697	+0.309	-0.075	+0.754	+0.069	-0.150
9	SUFORSOR	0.935	+0.103	0.913	-0.280	-0.090	-0.100
0	CPRFORER	0.863	+0.809	0.164	-0.196	-0.290	-0.242
1	BORINGID	0.827	+0.820	0.204	+0.122	-0.289	-0.119
2	SU ST CC	0.739	-0.834	0.041	+0.016	-0.186	+0.084
3	SU WK CC	0.865	+0.822	0.211	-0.363	+0.115	+0.021
4	SU AC CC	0.850	+0.369	0.536	-0.595	-0.236	+0.049
5	SU PA CC	0.688	+0.801	0.036	+0.112	+0.135	+0.120
6	SU PO CC	0.861	-0.645	-0.260	+0.591	+0.133	-0.087
7	SU NG CC	0.919	+0.720	0.379	-0.484	-0.006	-0.149
8	SU TP CC	0.937	+0.655	0.408	-0.565	-0.062	-0.135
9	CC ST SU	0.791	-0.136	-0.076	+0.068	+0.044	+0.106
0	CC WK SU	0.897	+0.697	0.103	-0.203	-0.193	-0.007
1	CC AC SU	0.896	+0.688	-0.434	-0.219	-0.413	+0.125
2	CC PA SU	0.780	+0.241	-0.069	-0.733	+0.017	-0.423
3	CC PO SU	0.881	-0.713	-0.024	+0.584	+0.124	+0.125
4	CC NG SU	0.944	+0.756	0.271	-0.553	-0.196	-0.179
5	CC TP SU	0.951	+0.765	0.228	-0.488	-0.236	-0.141

Factor Names:

* Sino-Soviet Cooperation, Mutual Threat Perceptions and Conflict

** Soviet Initiatives

*** Chinese Perceptions of Soviets

**** Treaties

***** Soviet Economic Aid

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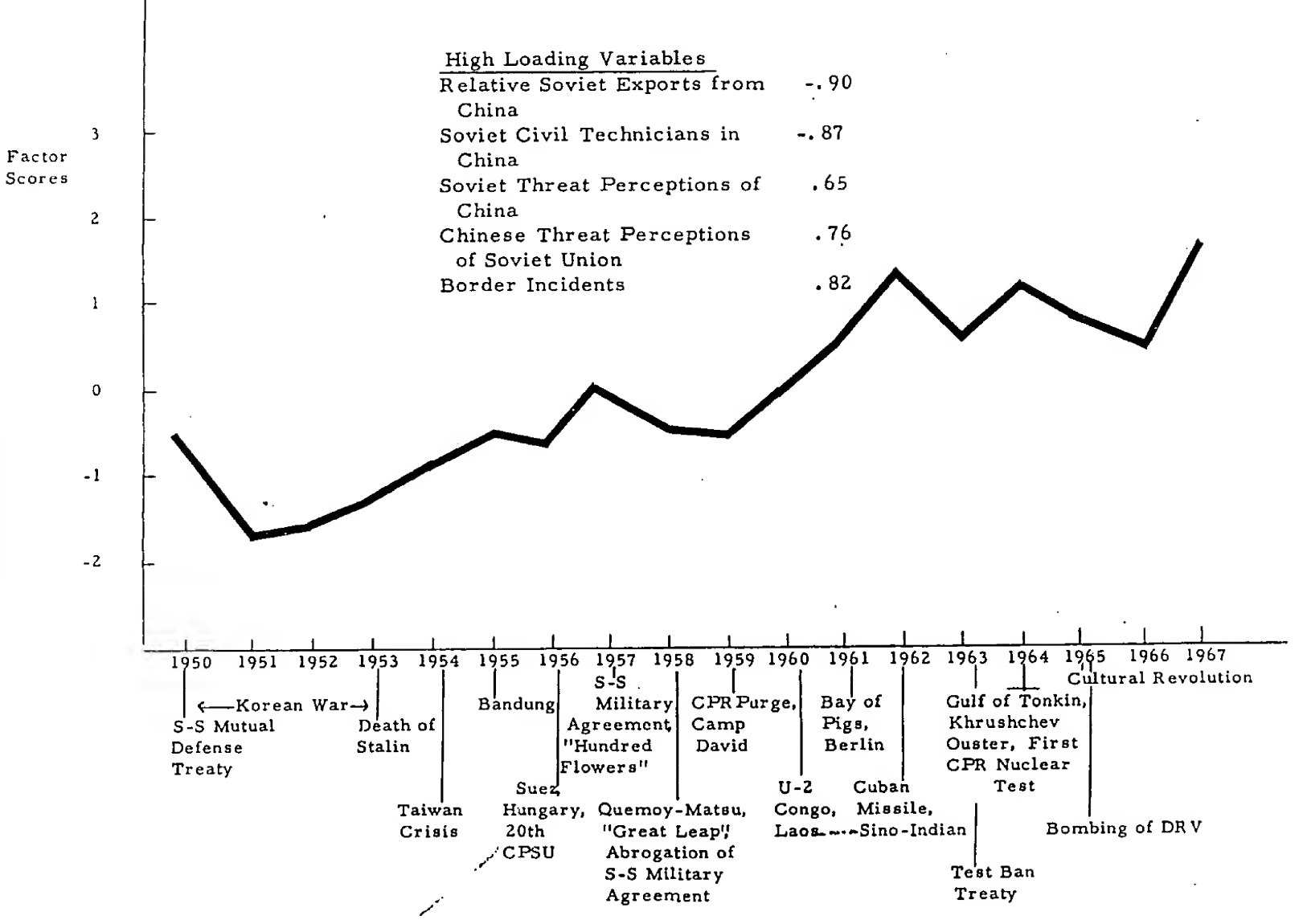

FIGURE 34

FORTY-FIVE SINO-SOVIET INTERACTIONS: FACTOR 1
SINO-SOVIET COOPERATION, MUTUAL THREAT PERCEPTIONS

confirmed here as measures of Soviet and Chinese hostility. As Chinese independence from the Soviet Union increased, Sino-Soviet hostility also increased.

(U) It should also be noted that Chinese perceptions of the Soviets as threatening and negative loaded on the same factor as Chinese deployment of troops to the border. However, Soviet deployment of troops to the border was independent of their perceptions of the Chinese as negative and threatening. It appears, therefore, that the Chinese perceptions corresponded more closely to their behavior than did Soviet perceptions and that the Soviets consciously avoided revealing their true perceptions of the Chinese during this period. The Chinese increased their troops at the border in 1959 and 1963. The Soviets increased their troops in 1960 and 1962. The Chinese started a trend of increasingly negative statements in 1959 and accelerated considerably in 1963. The Soviets, however, decreased their negative statements in 1960 and did not increase them substantially until 1962. The Soviets appear to have been quite cautious in their verbal behavior--a probable attempt to avoid public attacks on the Chinese in hopes that the trend of increasing hostility between the two states might be reversed. Nevertheless, Moscow did take military actions to bolster the forces in the border area in case the conflict accelerated. In a case such as this, where the Soviets saw an advantage in masking their true perceptions of the Chinese, it is difficult to deduce a country's behavior from its perceptions.

(U) The second orthogonally rotated factor from Table 37 accounts for 18 percent of the total variance. This factor is named Soviet Initiatives and is characterized primarily by Soviet actions. The plot of scores for this factor is presented in Figure 35 and shows a rise in cooperative Soviet initiatives until 1957. A short transition period occurred until 1959 when a trend of decreased cooperative Soviet behavior and a trend of increased hostile Soviet behavior, e.g., "Soviet forces at the border," began.

(U) The third factor accounts for 16 percent of the total variance and is called Chinese Perceptions of the Soviets. The plot of scores for this factor are shown in Figure 36. A positive slope in this pattern designates a Chinese perception of the Soviets as stronger while a negative slope designates a Chinese perception of the Soviets as more passive. The latter half of the pattern is most interesting in that 1959 marks a period of increased perceptions of the Soviets as strong until 1962 when a dramatic falling off occurred.

(U) The fourth factor is characterized by "treaties and agreements between the Soviet Union and China." It should be noted that these variables are not cumulative over time but rather only measure the number of treaties signed each year. A somewhat erratic pattern is therefore expected. The plot of scores for this factor is presented in Figure 37. The pattern changes by 1958 with the years 1959-1967 marking a more steady and less active period than that experienced in 1950-1958.

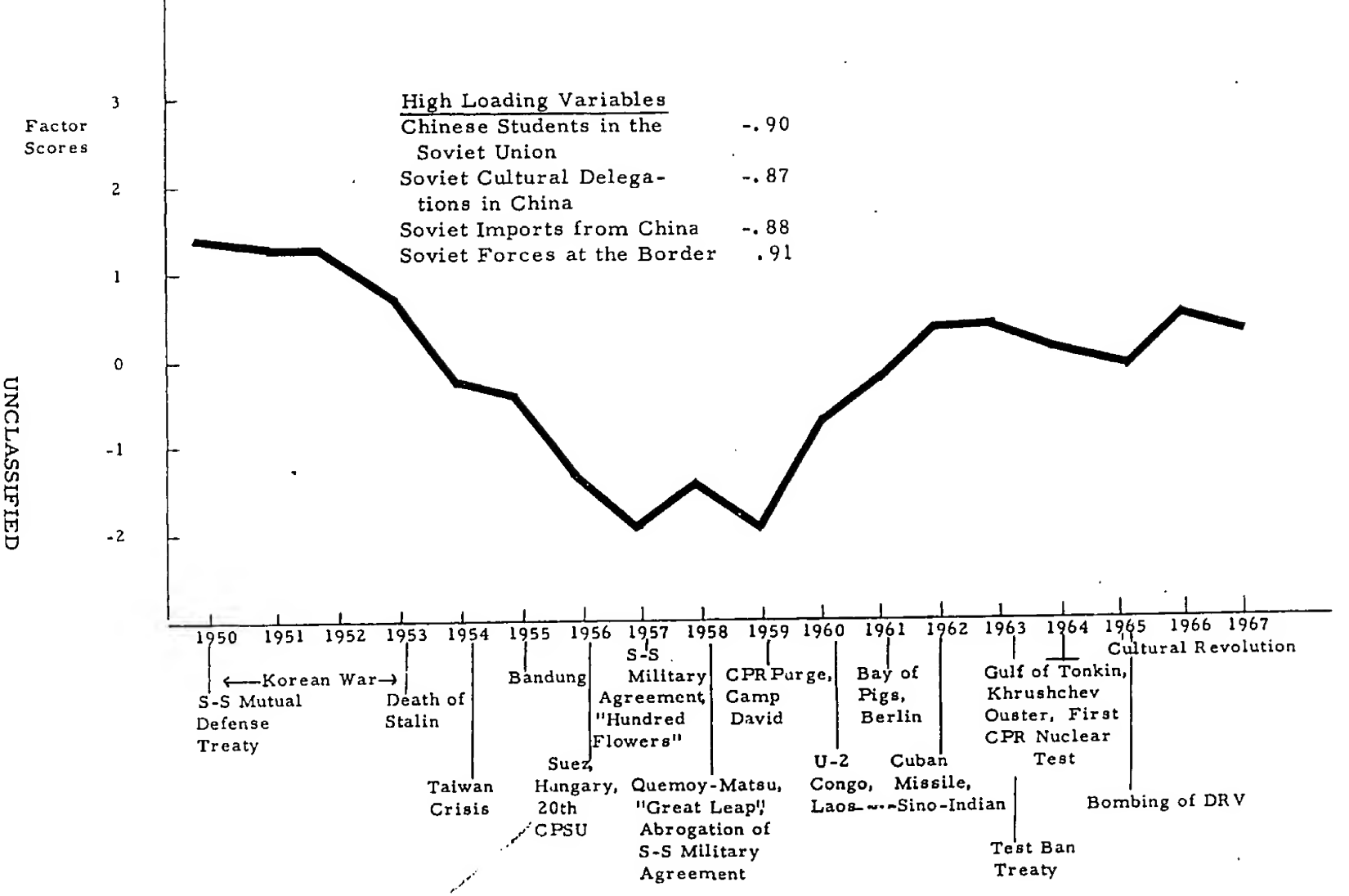

FIGURE 35

FORTY-FIVE SINO-SOVIET INTERACTIONS: FACTOR 2
SOVIET INITIATIVES

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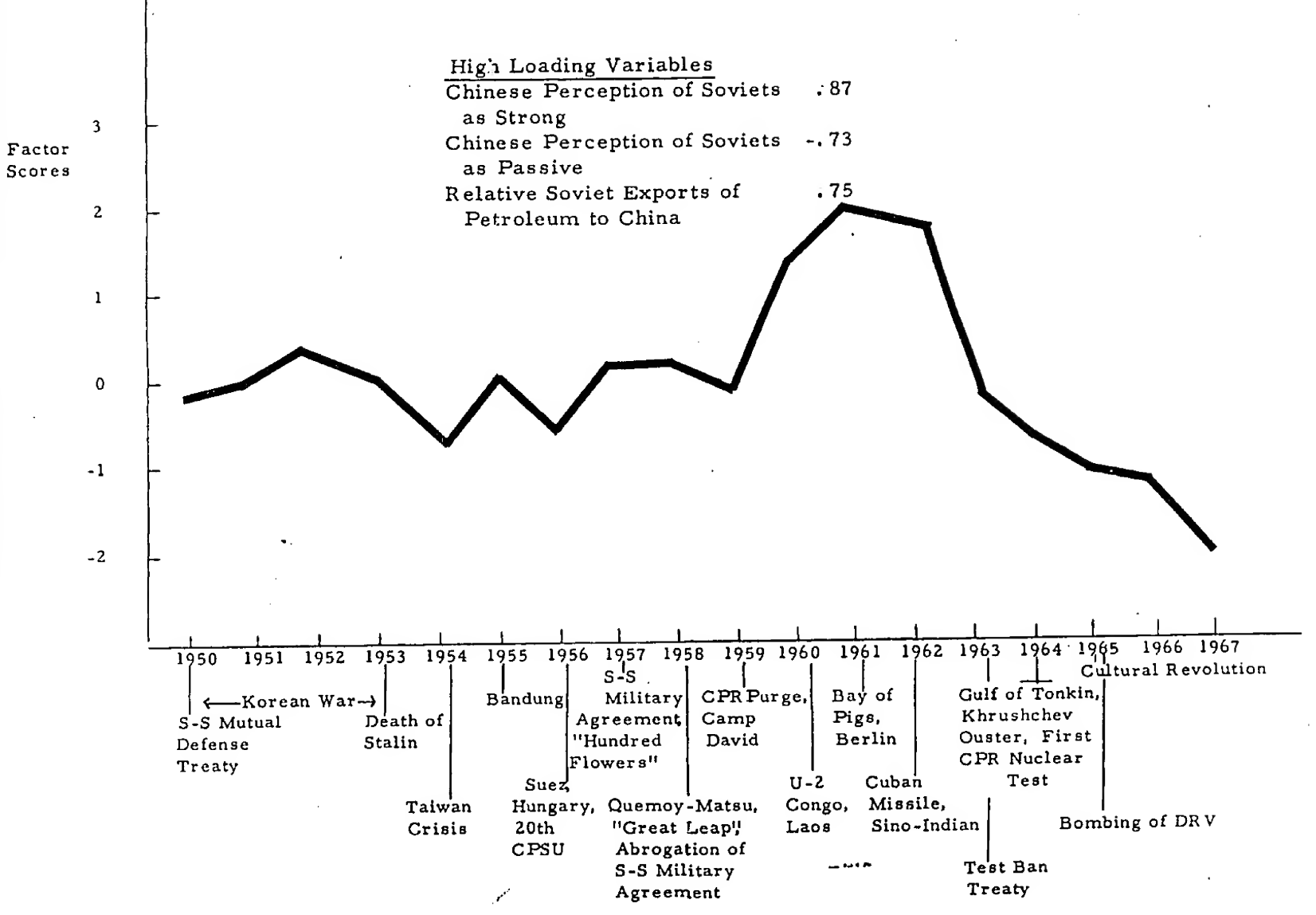

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FIGURE 36

FORTY-FIVE SINO-SOVIET INTERACTIONS: FACTOR 3
CHINESE PERCEPTIONS OF SOVIETS

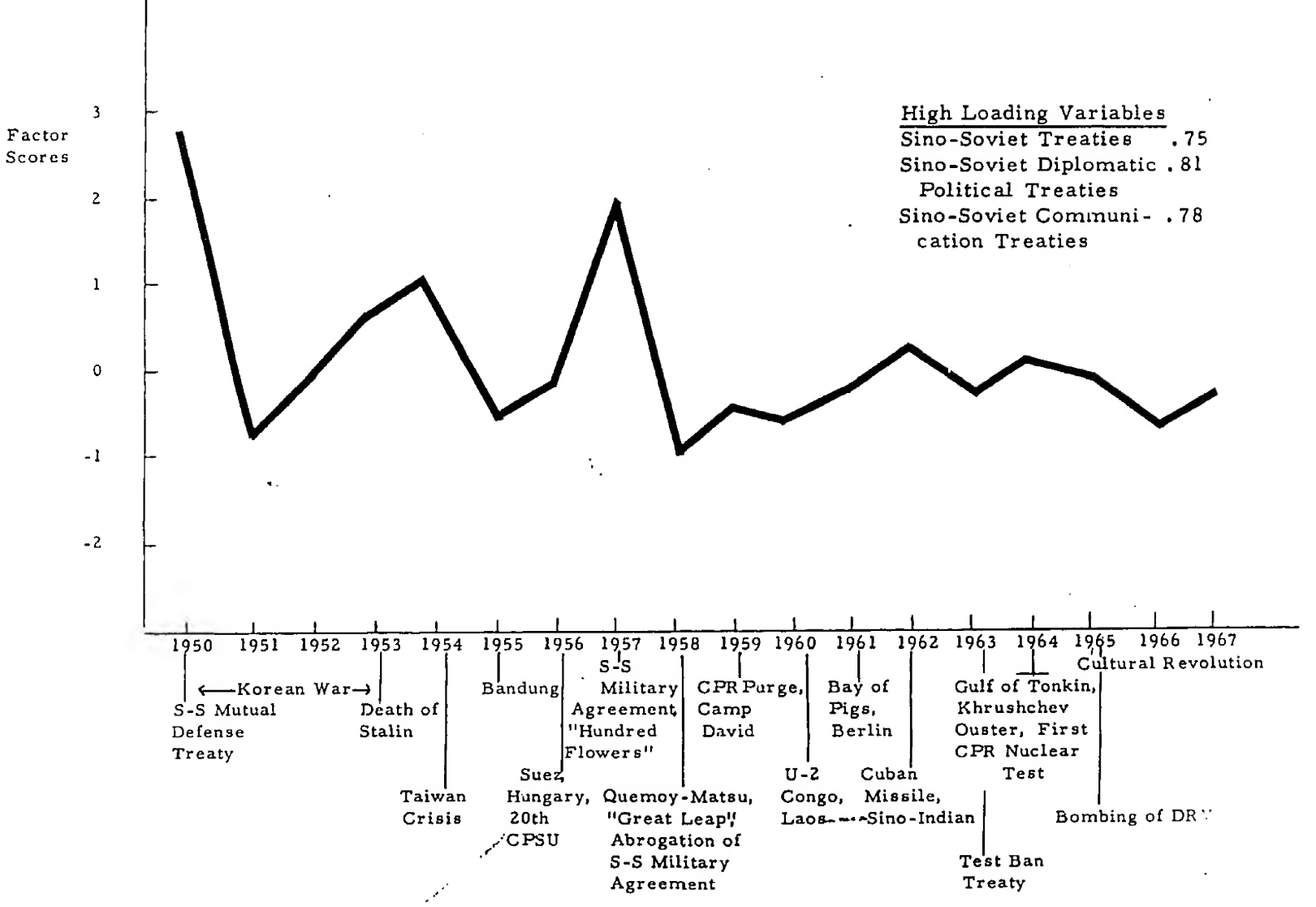

FIGURE 37

FORTY-FIVE SINO-SOVIET INTERACTIONS: FACTOR 4
TREATIES

(U) The fifth factor is called Soviet Economic Aid. The plot of scores is presented in Figure 38. The pattern reached a high point in 1955 and generally decreased thereafter. "Soviet economic aid to China" actually ended in 1961, but the other variables loading on the factor carried the pattern to 1967.

2. SINO-SOVIET INTERACTION ANALYSIS - 31 VARIABLES

(U) The 14 perceptual variables were removed and a factor analysis was performed on the remaining 31 interactions. The table of positive eigenvalues is presented in Table 38. The five factors explain 85.1 percent of the total variance.

(U) The rotated factor matrix is presented in Table 39. Even with the exclusion of the perceptual variables, the patterns which emerged are quite similar to the factors derived from the 45 variables.

(U) The first factor is labeled Sino-Soviet Cooperation-Conflict and is similar to the first factor from the 45 solution with the exception of the missing perception variables. The plot of scores for this factor is presented in Figure 39. The pattern is less erratic than before and shows a gradual change from cooperation to conflict. As was noted in the attribute study, the perception variables show more variance and thus cause a less stable pattern when they are included.

(U) The second factor, Soviet Initiatives, is almost identical to the second factor from the 45 solution. Perceptions did not load on the earlier factor and therefore their absence here is not noticed. The plot of scores for this factor is presented in Figure 40.

(U) The third factor is very similar to factor 4 of the 45 variable solution, and is again called Treaties. The plot of scores for this factor is shown in Figure 41.

(U) Factor 4, Soviet Trade of Petroleum, is similar to factor 3 from the 45 variable study despite the fact that the earlier factor was primarily a perceptual factor. "Soviet trade of petroleum to China" loaded only moderately on the earlier factor, but in the 31-variable study it is now the indexing variable. The plot of scores for this factor is presented in Figure 42.

(U) Factor 5 is called Soviet Economic Aid and is similar to factor five of the 45 variable study. Again, without the perceptual variables, the plot in Figure 43 is less erratic.

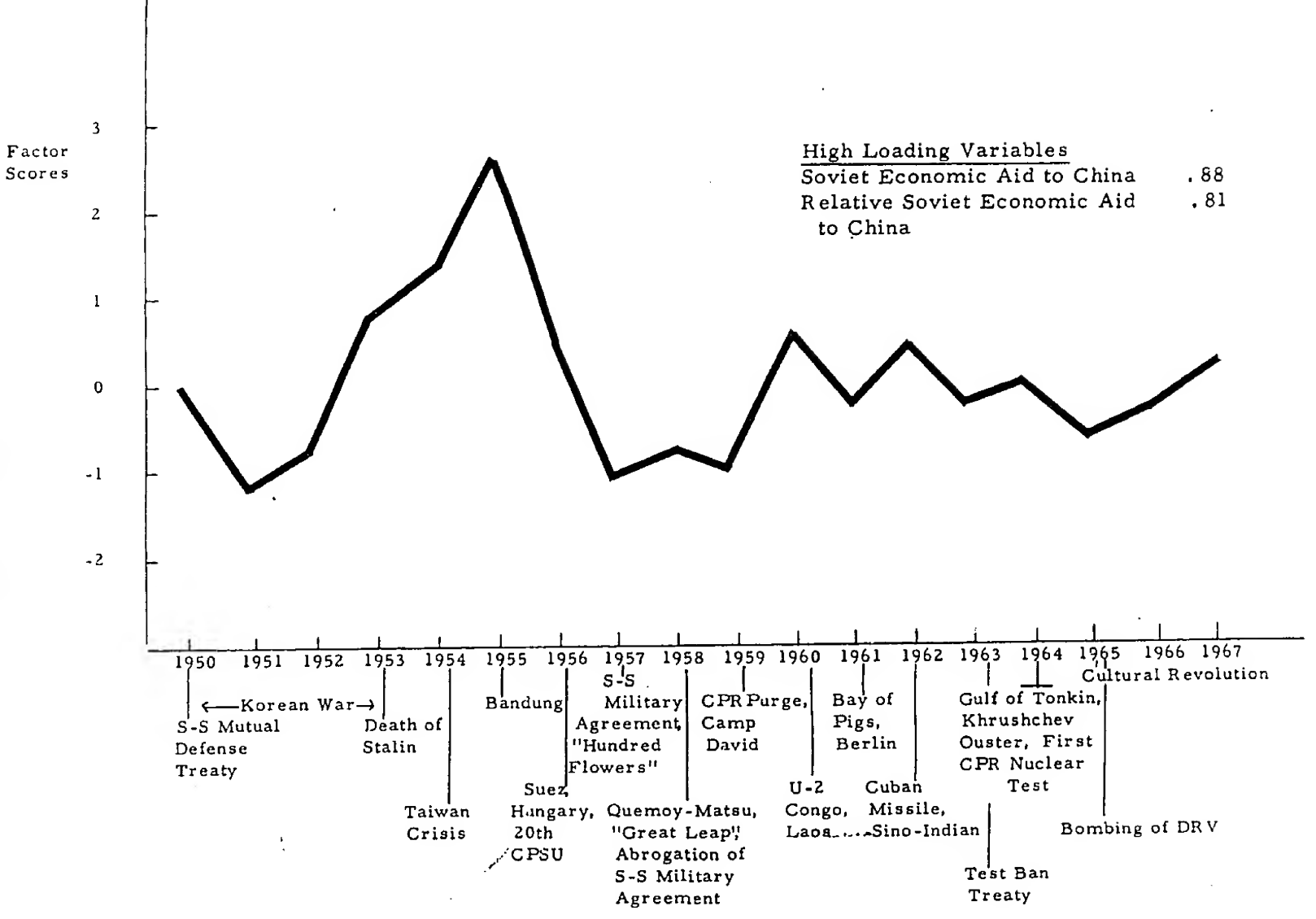

FIGURE 38

FORTY-FIVE SINO-SOVIET INTERACTIONS: FACTOR 5
SOVIET ECONOMIC AID

TABLE 38

Sino-Soviet Interactions - 31 Variables

TABLE OF POSITIVE EIGENVALUES

NO.	EIGENVALUE	PERCENT OF COMMUNALITY ALL (18) FACTORS Each	Cumulative
1	14.366	46.3	46.3
2	4.618	14.9	61.2
3	3.582	11.6	72.8
4	2.366	7.6	80.4
5	1.452	4.7	85.1
6	1.093	3.5	88.6
7	1.043	3.4	92.0
8	0.665	2.2	94.2
9	0.559	1.8	96.0
10	0.338	1.1	97.1
11	0.252	0.8	97.9
12	0.206	0.7	98.5
13	0.167	0.5	99.1
14	0.132	0.4	99.5
15	0.071	0.2	99.7
16	0.069	0.2	99.9
17	0.024	0.1	100.0
18	0.000	0.0	100.0

TRACE OF ORIGINAL MATRIX = 31.000
COMMUNALITY OVER 18 FACTORS = 31.000

TABLE 39

Sino-Soviet Interaction: ROTATED FACTOR MATRIX

FACTOR NUMBER	1 *	2 **	3 ***	4 ****	5 *****
SUM SQUARES OVER VARIABLES	10.902	6.406	3.533	3.351	2.193
PERCENT OF TOTAL VARIANCE	35.168	20.664	11.398	10.810	7.074

VARIABLE NO.	NAME	COMMUNALITY 5 FACTORS					
1	SUECAID	0.829	-0.282	-0.067	-0.096	-0.011	+0.858
2	RSUECAID	0.920	-0.376	0.026	-0.039	-0.125	+0.873
3	SUCTCPR	0.948	-0.932	-0.241	0.097	-0.071	+0.081
4	CPRCTSU	0.899	-0.868	-0.253	0.121	0.233	+0.100
5	SUMILAID	0.921	-0.902	-0.196	0.155	-0.214	+0.024
6	CPRSTSU	0.895	-0.394	-0.845	-0.022	0.143	+0.069
7	SSTREATY	0.829	-0.446	-0.322	0.674	0.229	-0.001
8	SSECONTR	0.648	-0.408	0.112	0.583	0.259	+0.249
9	SSS-TTR	0.604	-0.481	-0.573	-0.195	0.024	-0.093
10	SSO-PTR	0.875	-0.550	-0.099	0.576	-0.040	-0.321
11	SSCULTR	0.833	+0.173	-0.678	0.221	0.537	-0.076
12	SSCOMTR	0.716	-0.004	-0.022	0.843	-0.022	+0.065
13	SUDEVCPR	0.740	+0.035	-0.719	0.336	-0.308	-0.121
14	CPRDEVSU	0.827	+0.107	-0.140	0.594	0.638	-0.175
15	SUDVDCPR	0.877	+0.005	-0.716	0.556	-0.214	-0.098
16	CPRDVDSU	0.627	-0.226	0.193	0.631	0.257	-0.273
17	SUDRCCPR	0.825	+0.542	0.229	-0.151	-0.669	-0.091
18	CPRDRCSU	0.796	+0.637	0.205	-0.173	-0.540	-0.161
19	SUCLOCPR	0.937	-0.391	-0.845	-0.085	0.243	+0.041
20	CPRCLOSU	0.962	-0.695	-0.478	0.035	0.113	+0.068
21	SUEXPCPR	0.917	-0.773	-0.486	-0.106	0.082	+0.255
22	SUIMPCPR	0.922	-0.263	-0.867	-0.176	0.256	+0.068
23	RSUEXCPR	0.991	-0.965	-0.018	0.066	-0.050	+0.223
24	RSUIMCPR	0.975	-0.856	-0.465	0.011	0.074	+0.145
25	RCPPEXSU	0.893	-0.788	-0.396	0.036	0.224	+0.266
26	RCPRIMSU	0.978	-0.943	0.112	0.222	0.065	+0.149
27	SUPETCPR	0.845	-0.557	-0.254	-0.056	0.664	-0.160
28	RSUPTCPR	0.780	+0.279	-0.104	0.075	0.826	-0.060
29	SUFORDOR	0.936	+0.202	0.878	-0.078	-0.315	-0.137
30	CPRFORDR	0.852	+0.877	0.110	-0.198	-0.099	-0.148
31	BORINCID	0.787	+0.841	0.136	-0.201	0.077	-0.127

Factor Names:

* Sino-Soviet Cooperation-Conflict
** Soviet Initiatives
*** Treaties
**** Soviet Trade of Petroleum
***** Soviet Economic Aid

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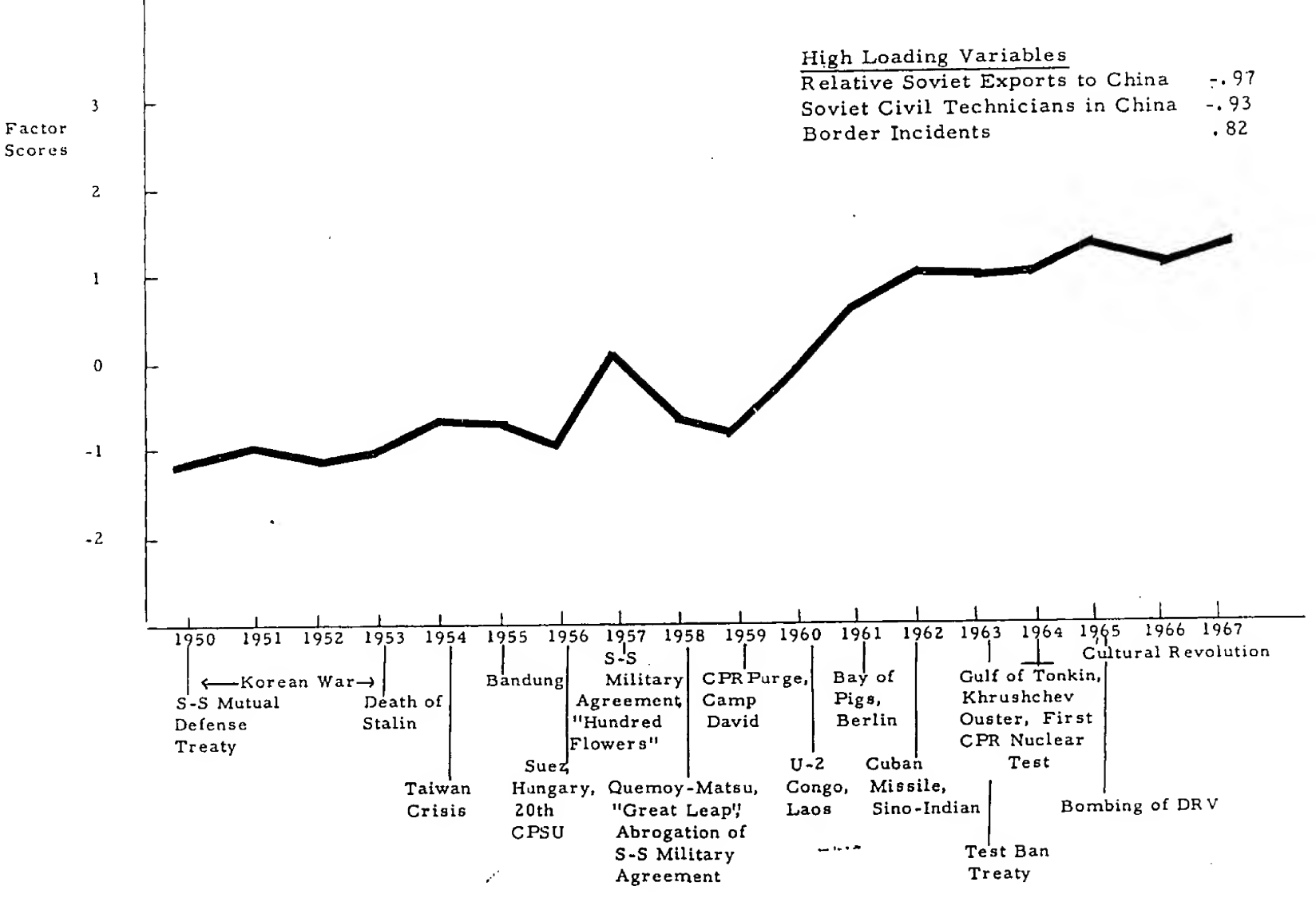

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FIGURE 39

THIRTY-ONE SINO-SOVIET INTERACTIONS: FACTOR 1
SINO-SOVIET COOPERATION-CONFLICT

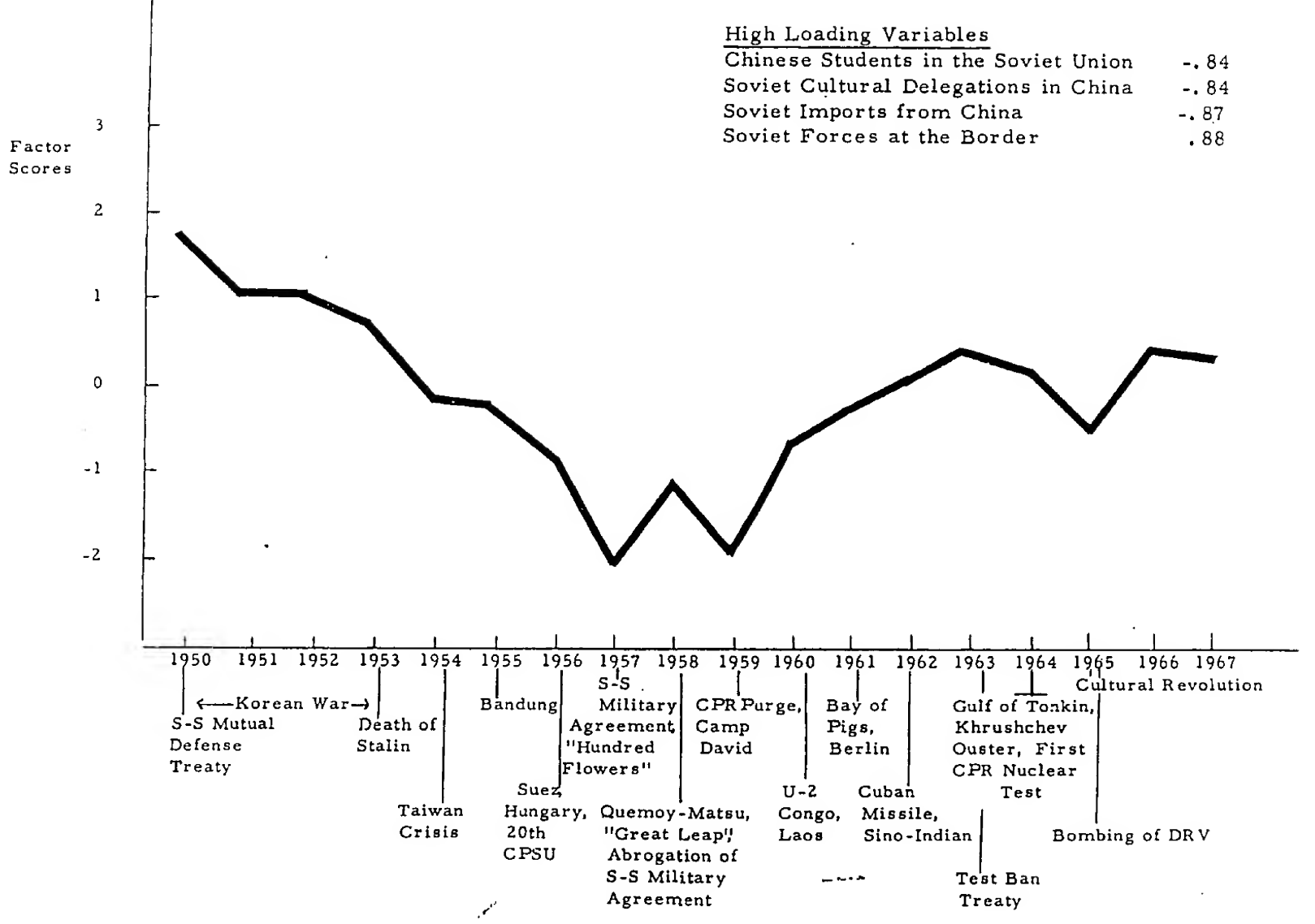

FIGURE 40

THIRTY-ONE SINO-SOVIET INTERACTIONS: FACTOR 2
SOVIET INITIATIVES

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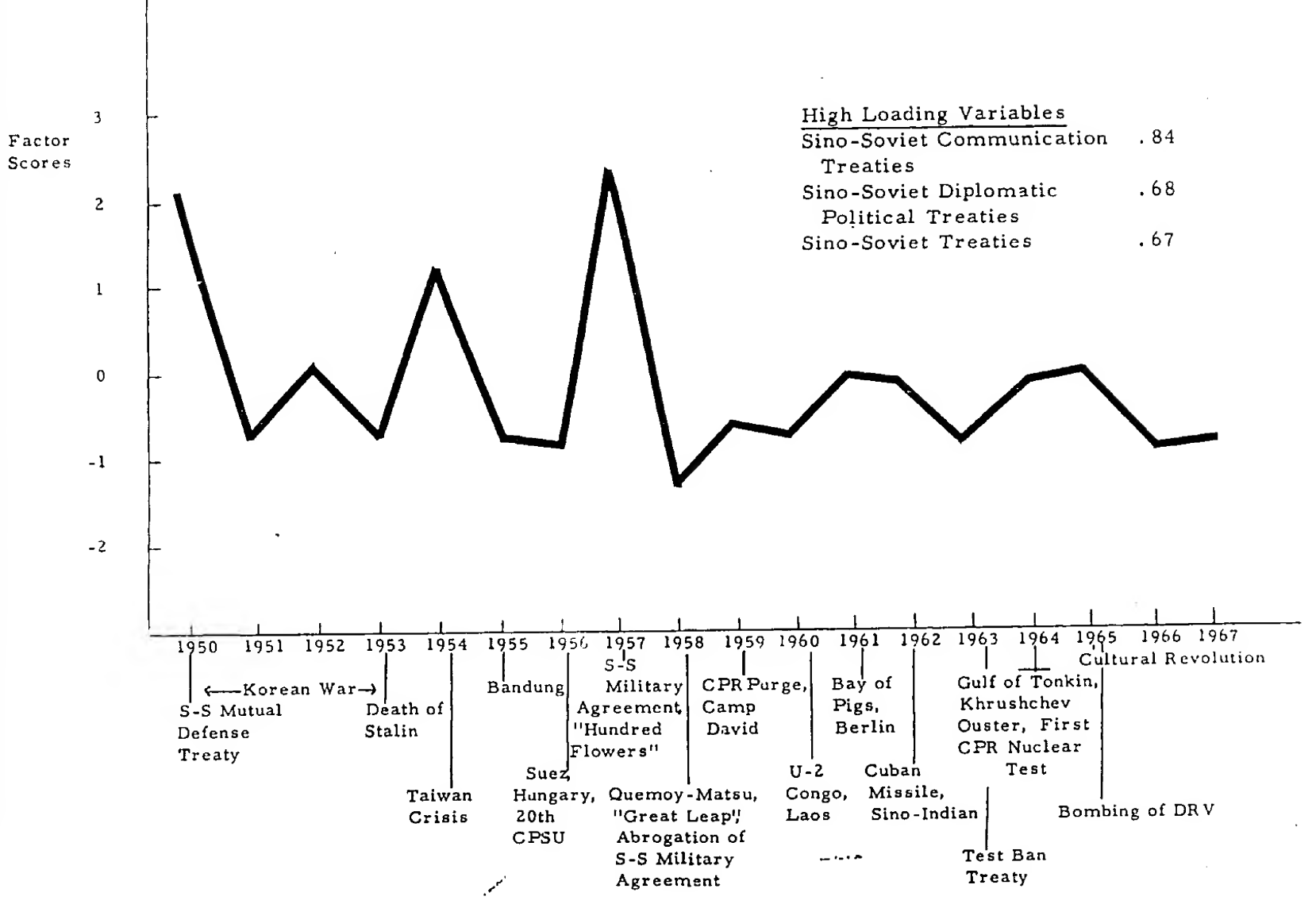

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FIGURE 41

THIRTY-ONE SINO-SOVIET INTERACTIONS: FACTOR 3
TREATIES

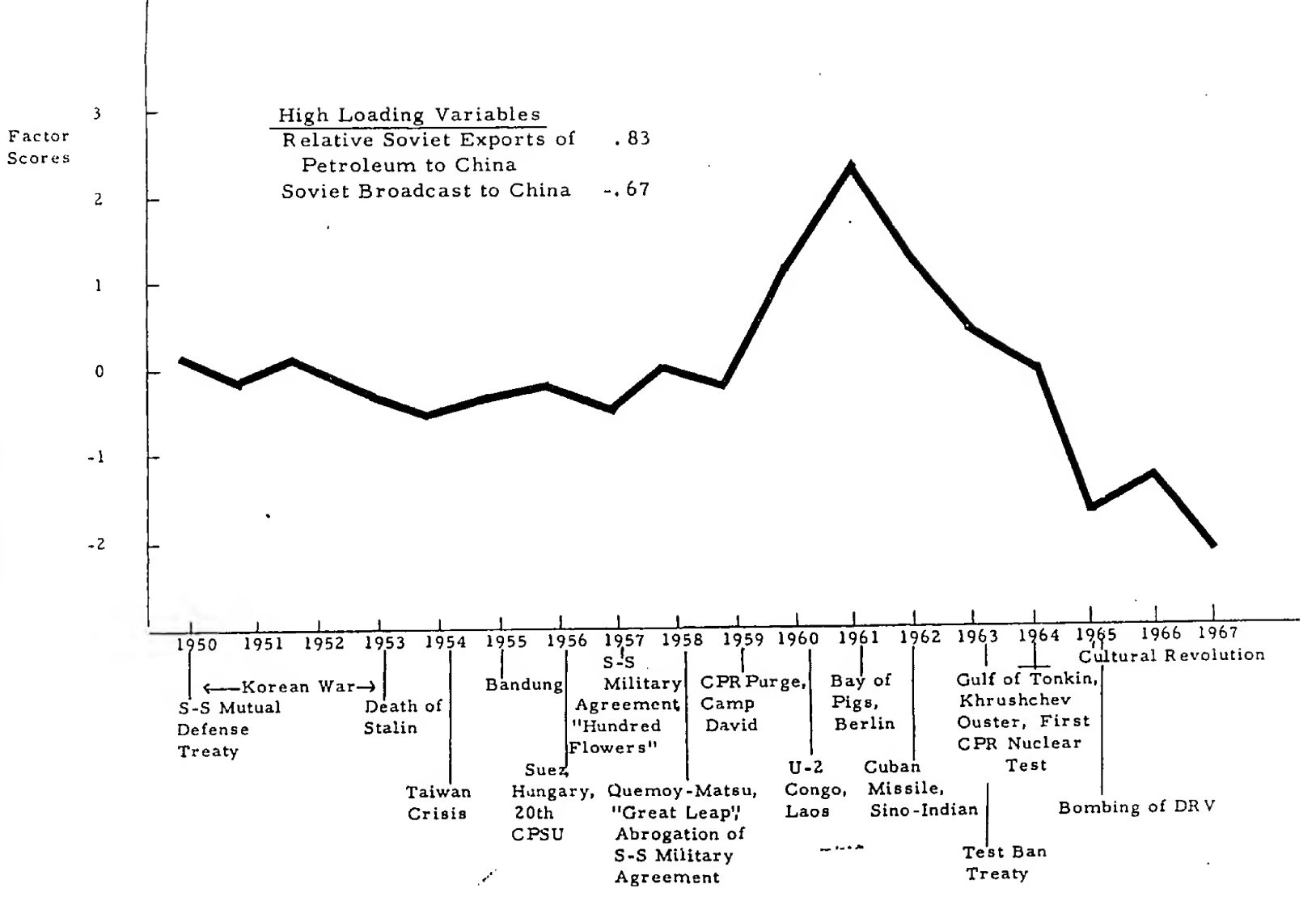

FIGURE 42

THIRTY-ONE SINO-SOVIET INTERACTIONS: FACTOR 4
SOVIET TRADE OF PETROLEUM

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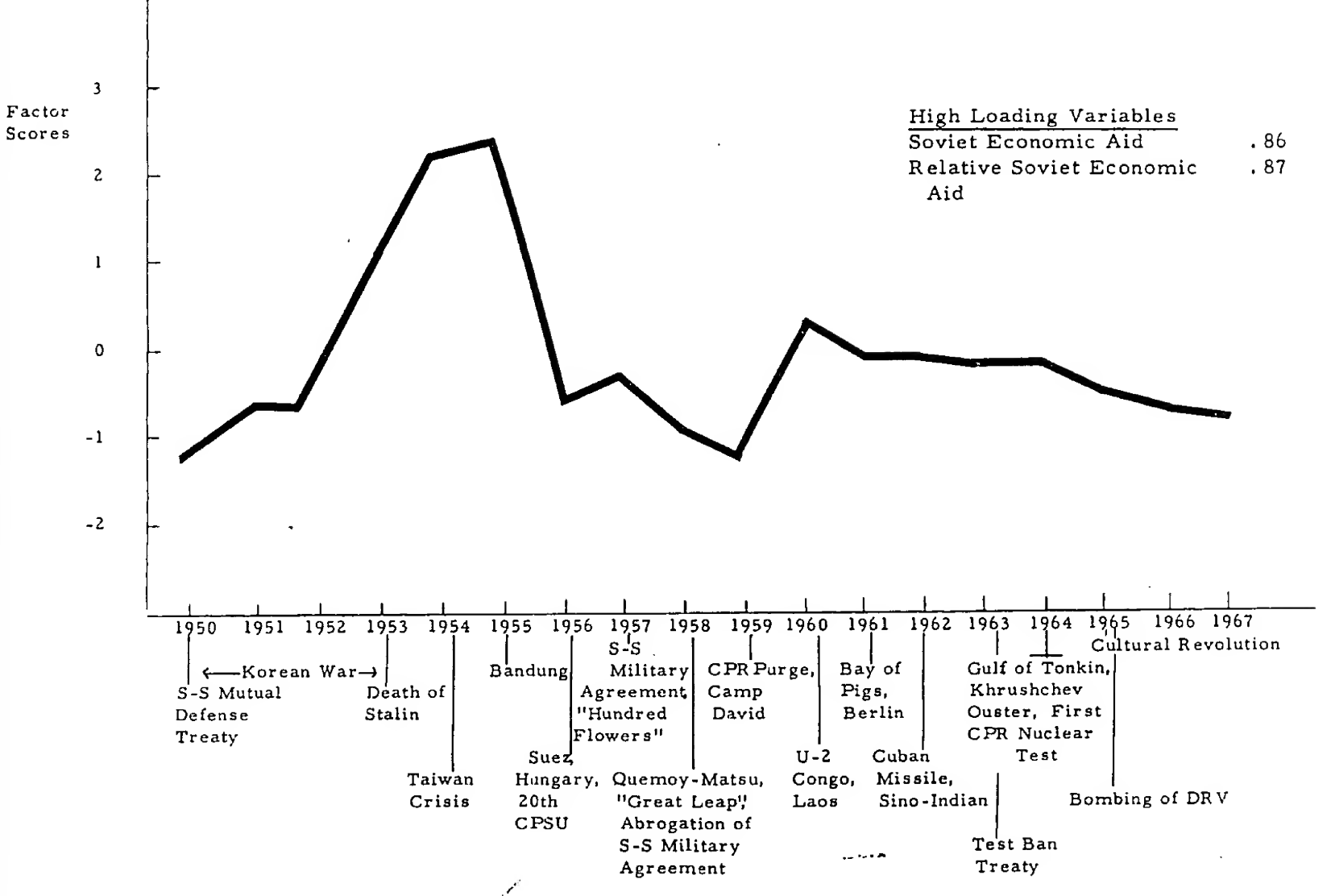

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FIGURE 43

THIRTY-ONE SINO-SOVIET INTERACTIONS: FACTOR 5
SOVIET ECONOMIC AID

C. FINDINGS FROM SINO-SOVIET INTERACTION ANALYSIS

(U) The major findings derived from the analysis of the direct Sino-Soviet interaction variables are summarized as follows:

- The dominant factor derived from an analysis of the 45 variables used to measure direct interactions between China and the Soviet Union delineates a pattern of decreasing Soviet and Chinese cooperation and increasing Soviet and Chinese hostility. This pattern is indexed by those Soviet and Chinese interactions which have been labeled by many as the major manifestations of the Sino-Soviet dispute; e.g., decreasing trade and increasing border incidents and negative perceptions of each other.

2. Measures of Chinese trade dependency on the Soviet Union are negatively and highly correlated with measures of Soviet and Chinese hostility. This seems to confirm the hypothesis that as Chinese independence from the Soviet Union increased so did Sino-Soviet hostility.

3. A pattern of Soviet and Chinese perceptions of each other as negative and threatening but also as weak appeared in the analysis. This again appears to be the familiar "paper tiger" theme. Each country perceived the other negatively and as a threat, but at the same time it dismissed their actual strength or potential to disrupt.

4. A major difference between the two Communist powers in their interactive behavior was found. Chinese perceptions were highly related to their physical behavior, but this was not so in the Soviet case. Chinese perceptions of the Soviets as threatening and negative related positively to increased Chinese deployment of troops to the Sino-Soviet border. However, over the same period the Soviet deployment of troops to the border was found to be independent of Moscow's changing perceptions of the Chinese on these two variables. When the Soviets initiated measures to strengthen their border with China they concurrently reduced rather than increased the intensity of their verbal pronouncements about the Chinese. The Soviets thus appear to have resisted attacking the Chinese in public as long as possible, perhaps in hope that the problems causing the increased tension might be solved.

5. A major pattern of Soviet Chinese interaction describes a rise in cooperative Soviet-Chinese behavior until 1957, a transition period lasting until 1959, and then a trend which exhibits increasing hostile Soviet behavior toward Peking until the present. This is the Soviet Initiatives dimension.

6. In conclusion, the addition of the 14 perceptual variables to the "physical" interaction variables does not greatly change the basic patterns of the "physical" variables. In some cases the perception variables do cause a more erratic pattern, but generally the change is small.

SECTION VI

CANONICAL ANALYSIS OF ATTRIBUTES AND INTERACTIONS

A. ATTRIBUTES AND INTERACTIONS

(U) We now come to the heart of the study, but before we proceed, a short review of the analysis to this point is in order.

(U) The analysis of attributes used factor analysis as a descriptive device to define the patterns of attribute variation for the Soviets and for the Chinese. A joint factor analysis was then used to combine the descriptions of the two countries for comparative purposes. The joint study showed that the Soviets were growing faster than the Chinese industrially and that the Soviets had moved from conventional to nuclear defense planning during the period under study while the Chinese increased their conventional force commitments. The joint study also suggested that these comparative differences between the Soviets and Chinese might be important as predictors of the patterns of interaction during the period under study. The differences between the Soviets and Chinese on the major attributes were, therefore, calculated and analyzed.

(U) The difference analysis consisted of factor analyses of the difference matrix (24 variables) and three sub-matrices (16 attributes, 9 attributes, and 6 attributes). The analysis of Sino-Soviet differences on 23 attributes identified three major dynamic patterns: Industrialization and Nuclear Capability Gap, a Gap in Perception of US as a Threat, and a Gap in Perception of the US as Active. Of these, the major pattern delineated was the industrialization and nuclear capability gap.

(U) The perception variables were then removed, leaving 16 variables. The factor analysis of these 16 variables also revealed three major patterns, the first factor being similar to the first factor in the 23 variable solution.

(U) These 16 variables, when broken into 9 economic and 6 military variables, again revealed three patterns of differential growth, indicating that the two small subsets of attributes still retained fairly complex inter-relationships.

(U) The Sino-Soviet interaction analysis revealed five patterns of interactions for 45 variables. When the 14 mutual perception variables were removed, we still found a very similar structure for five patterns of interaction. Soviet and Chinese behavior and perceptions seem to follow basically the same patterns. Since the patterns for the 45 and 31 variable analyses were so similar, only the 45 variable interaction analysis is used in this section.

B. CANONICAL REGRESSION AND CORRELATION ANALYSIS

(U) As stated in the introduction, canonical regression and correlation is a particular type of factor analysis that maximizes the linear relationships between observed variables from two sets of data. The variables within these sets of data must be independent of each other. By using component factor analysis on the attributes and interactions, we not only reduced the mass of data to a few dynamic patterns, but also achieved orthogonality among these patterns. We can, therefore, use the factor scores from the patterns that were delineated as input variables into the canonical program. We used the factor scores from the Soviet and Chinese differences in attributes as predictor variables to the factor scores of Sino-Soviet interactions. Therefore, the factor scores of the three patterns (factors) derived from each subset (4 subsets in all) of attributes constitutes one set of data (4 sets in all). Each of these sets of data are canonically regressed separately against the set of data comprised of the factor scores from the five factors from the interaction variables. (See Figure 44).

(U) Canonical analysis is a rotation of these two sets of factor scores to a new orthogonal solution. The new solution consists of orthogonal variates, three of which were obtained from each canonical analysis.

(U) A canonically rotated factor loading matrix is presented for each set of data. These matrices represent the loadings of the original variables on the new canonical variates. There is a separate set of canonical variates for each matrix. Thus, Variate 1 from the attribute matrix is maximally related to Variate 1 of the interaction matrix. Both of these variates are independent of all other variates. The variable loadings are interpreted the same as in component factor analysis. The square of the loading times one-hundred equals the percent variation that a variable has in common with that pattern. The communality estimates are also given in the matrices. The communality estimates record the percent of variance for each variable which is accounted for by all the canonical variates.

(U) In addition to the canonically rotated factor loading matrix, the canonical correlation, a statistic which ascertains the degree of pattern similarity for the corresponding variates, is also presented. This correlation is the square root of the eigenvalue that scales both variates; i.e., the correlation between variate scores from each set of data. The significance of the canonical correlation is given but must be treated with caution because the distribution underlying the population is unknown.

(U) Factor scores for the attributes and the interactions on the variates are also obtained and plotted for each canonical analysis.

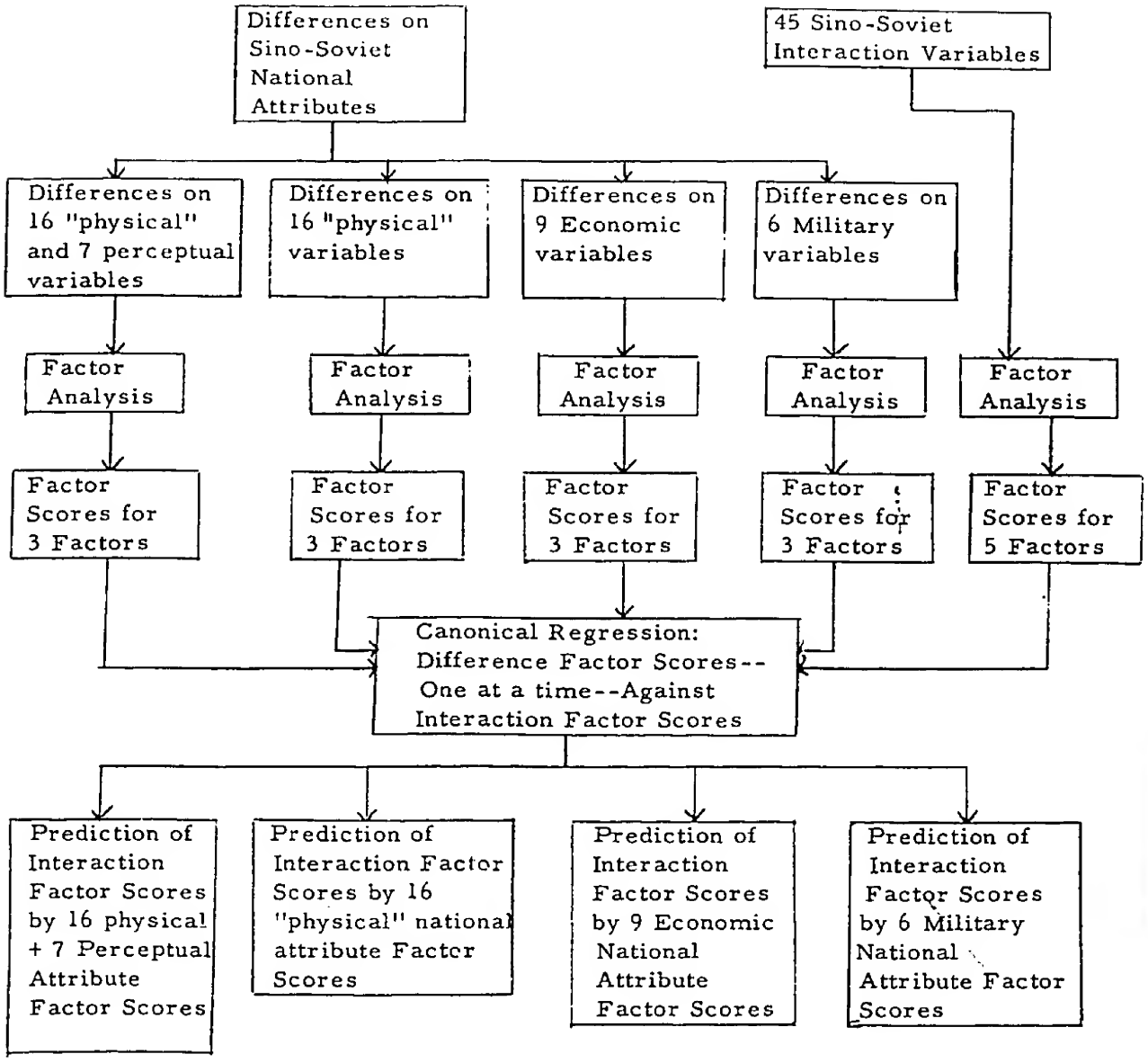


FIGURE 44
CANONICAL REGRESSION ANALYSIS

1. Canonical Analysis of Differences in 23 Attributes and 45 Interactions

(U) A canonical rotation was performed on the factor scores of the three factors derived in the 23 variable difference analysis and the factor scores of the five factors derived from the analysis of the 45 interactions. The canonically rotated factor loading matrix for the 23 attributes is presented in Table 40 and the canonically rotated factor loading matrix for the 45 interactions is presented in Table 41.

(U) Variate 1 in Table 40 (attribute matrix) is still characterized by the Sino-Soviet gap in industrialization and nuclear capability. Variate 1 in Table 41 (interaction matrix) is still one of increasing mutual threat perception and border hostility and decreasing economic and political cooperative behavior. It is this factor which we believe best describes the phenomenon called the "Sino-Soviet dispute." The canonical correlation between the two is .979. The scores on variate 1 are plotted in Figure 45.

(U) The differences in the 23 attributes in this pattern predict very highly to the 45 interactions across time. By knowing the differences in Soviet and Chinese attribute factor scores for the 18 year time period, 93 percent of the variation in the 45 Sino-Soviet interaction factors scores for that same period can be predicted. This is a very important finding and one which confirms R. J. Rummel's field theory notions: that differences between nations on attributes are related to the interactions between them. This is further enhanced by canonical rotations of the other subsets of attribute data that follow.

(U) Canonical variate 1 is identified as Sino-Soviet Industrialization and Strategic Gaps Predict to Increasing Mutual Threat Perception and Border Hostility and Decreasing Economic and Political Cooperative Behavior. As the industrialization and nuclear capability gap widens between the Soviets and Chinese, the Sino-Soviet conflict increases.

(U) Variate 2's attributes are predominantly a gap in Soviet and Chinese perceptions of the US as active. Variate 2's interactions are primarily Soviet initiatives. The canonical correlation between the two is .765. The scores on Variate 2 are plotted in Figure 46.

(U) The differences in the 23 attributes on this variate are moderately related to the interactions in the same year. The variate is named Sino-Soviet Differences in Perception of US Activeness and Sino-Soviet Differences in Conventional Military Strength Relate to Changing Soviet Military and Cultural Responses Vis-à-Vis China. In terms of direction, as the gap in conventional military strength decreased, and the gap in their perceptions of the US as active increased. Soviet cooperative responses toward China decreased and Soviet hostile acts increased. The difference

TABLE 40

CANONICAL ROTATION OF 45 INTERACTION AND 23 ATTRIBUTE VARIABLES: Attribute Matrix

ROTATED FACTOR MATRIX

VARIABLE NO.	NAME	COMMUNALITY 3 FACTORS	1	2	3
	FACTOR NUMBER		1	2	3
	SUM SQUARES OVER VARIABLES		8.920	5.327	3.033
	PERCENT OF TOTAL VARIANCE		38.781	23.160	13.185
1	GNP	0.985	+0.842	0.388	0.199
2	EXPORTS	0.988	+0.881	0.443	0.125
3	IMPORTS	0.976	+0.907	0.392	0.034
4	IMPT/GNP	0.691	+0.687	0.303	-0.357
5	EXPT/GNP	0.719	+0.618	0.513	-0.272
6	ENERGY	0.933	+0.799	0.339	0.423
7	AGRICPRO	0.322	+0.200	0.498	0.185
8	STEEL PR	0.986	+0.905	0.343	0.223
9	POPULTN	0.955	-0.899	-0.328	-0.200
10	DEFNCBUD	0.655	+0.681	0.433	0.069
11	DEFC/GNP	0.789	-0.834	-0.244	-0.176
12	FIGHTERS	0.748	-0.469	-0.670	-0.280
13	ARMFORCE	0.586	-0.294	-0.706	0.008
14	SUBMARIN	0.971	+0.813	0.518	0.194
15	ICBMS	0.810	+0.577	0.497	0.479
16	TREATIES	0.559	-0.591	0.697	0.437
17	CSTRG US	0.586	-0.246	0.303	0.658
18	DWEAK US	0.716	-0.090	-0.791	0.289
19	DACTV US	0.749	-0.375	0.777	0.069
20	DPASS US	0.678	+0.160	-0.760	-0.274
21	DPOST US	0.239	+0.425	-0.206	-0.126
22	DNEG US	0.786	+0.292	-0.228	0.805
23	DTHPR US	0.861	-0.225	0.414	0.800

TABLE 41

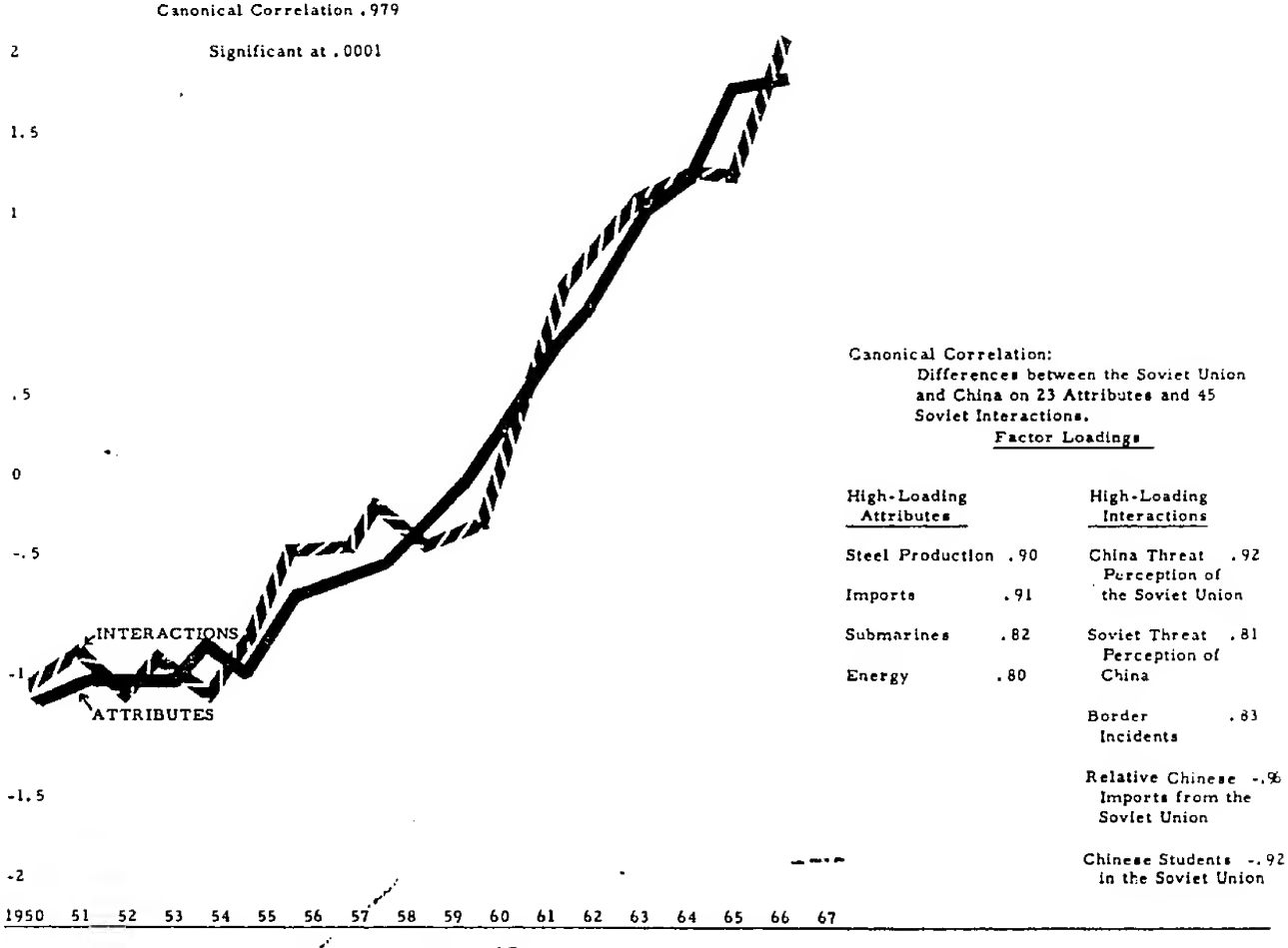
CANONICAL ROTATION OF 45 INTERACTION AND 23 ATTRIBUTE VARIABLES : Interaction Matrix

ROTATED FACTOR MATRIX

FACTOR NUMBER	1	2	3
SUM SQUARES OVER VARIABLES	19.904	4.704	4.635
PERCENT OF TOTAL VARIANCE	44.231	10.453	10.300

VARIABLE NO.	NAME	COMMUNALITY 3 FACTORS			
1	SUECAID	0.458	-0.390	-0.361	-0.420
2	RSUECAID	0.371	-0.476	-0.319	-0.207
3	SUCTCPR	0.917	[-0.914]	-0.264	+0.122
4	CPRCTSU	0.875	[-0.924]	-0.147	-0.085
5	SUMILAID	0.900	[-0.851]	-0.288	+0.304
6	CPRSTSU	0.771	-0.414	[-0.673]	-0.377
7	SSTREATY	0.402	[-0.591]	-0.208	-0.096
8	SSECONTR	0.326	[-0.564]	+0.089	-0.042
9	SSS-TTR	0.513	[-0.362]	[-0.612]	-0.084
10	SSG-PTR	0.369	[-0.549]	-0.078	+0.247
11	SSCULTR	0.337	-0.014	-0.188	[-0.549]
12	SSCOMTR	0.064	-0.208	+0.116	+0.086
13	SUCFVCPR	0.288	-0.032	[-0.506]	+0.181
14	CPRCFVSU	0.372	-0.125	+0.327	-0.499
15	SUCVDCPR	0.218	-0.130	-0.439	+0.095
16	CPRCVDSU	0.165	-0.284	+0.286	-0.047
17	SUBRCCPR	0.662	[0.706]	-0.146	+0.375
18	CPRBRCSU	0.704	[0.786]	-0.074	+0.283
19	SUCLDCPR	0.684	-0.430	[-0.580]	-0.405
20	CPRCLDSU	0.824	[-0.718]	[-0.534]	-0.169
21	SUEXPCPR	0.863	[-0.767]	-0.463	-0.181
22	SUIMPCPR	0.627	-0.350	[-0.594]	-0.429
23	RSUEXCPR	0.941	[-0.948]	-0.161	+0.130
24	RSUIMCPR	0.912	[-0.868]	-0.392	-0.073
25	RCPREXSU	0.849	[-0.872]	-0.242	-0.173
26	RCPRIMSU	0.936	[-0.964]	+0.037	+0.100
27	SUPLTCPR	0.576	[-0.649]	+0.206	-0.340
28	RSUPTCPR	0.536	0.101	+0.309	[-0.624]
29	SUFORHOR	0.687	0.307	[+0.807]	+0.474
30	CPRFORER	0.862	[0.925]	+0.075	+0.016
31	BURINCID	0.825	[0.897]	+0.224	-0.278
32	SU ST CC	0.545	[-0.708]	+0.013	+0.217
33	SU WK CC	0.648	[0.802]	-0.027	+0.069
34	SU AC CC	0.560	[0.694]	+0.086	+0.433
35	SU PA CC	0.535	[0.622]	+0.043	+0.302
36	SU PO CC	0.672	[-0.769]	+0.141	-0.259
37	SU NG CC	0.799	[0.854]	+0.093	+0.309
38	SU TP CC	0.813	[0.811]	+0.067	+0.389
39	CC ST SU	0.734	-0.374	+0.349	[-0.801]
40	CC WK SU	0.818	[0.834]	-0.248	+0.247
41	CC AC SU	0.876	[0.711]	[-0.543]	-0.274
42	CC PA SU	0.749	0.477	-0.292	[+0.66]
43	CC PO SU	0.846	[-0.842]	+0.258	-0.266
44	CC NG SU	0.901	[0.886]	-0.634	+0.332
45	CC TP SU	0.908	[0.924]	-0.052	+0.229

SINO-SOVIET INDUSTRIALIZATION AND STRATEGIC GAPS PREDICT TO INCREASING MUTUAL THREAT PERCEPTION AND BORDER HOSTILITY AND DECREASING ECONOMIC AND POLITICAL COOPERATIVE BEHAVIOR



Canonical Correlation:
Differences between the Soviet Union and China on 23 Attributes and 45 Soviet Interactions.

Factor Loadings

High-Loading Attributes		High-Loading Interactions	
Steel Production	.90	China Threat Perception of the Soviet Union	.92
Imports	.91		
Submarines	.82	Soviet Threat Perception of China	.81
Energy	.80		
		Border Incidents	.83
		Relative Chinese Imports from the Soviet Union	-.96
		Chinese Students in the Soviet Union	-.92

FIGURE 45

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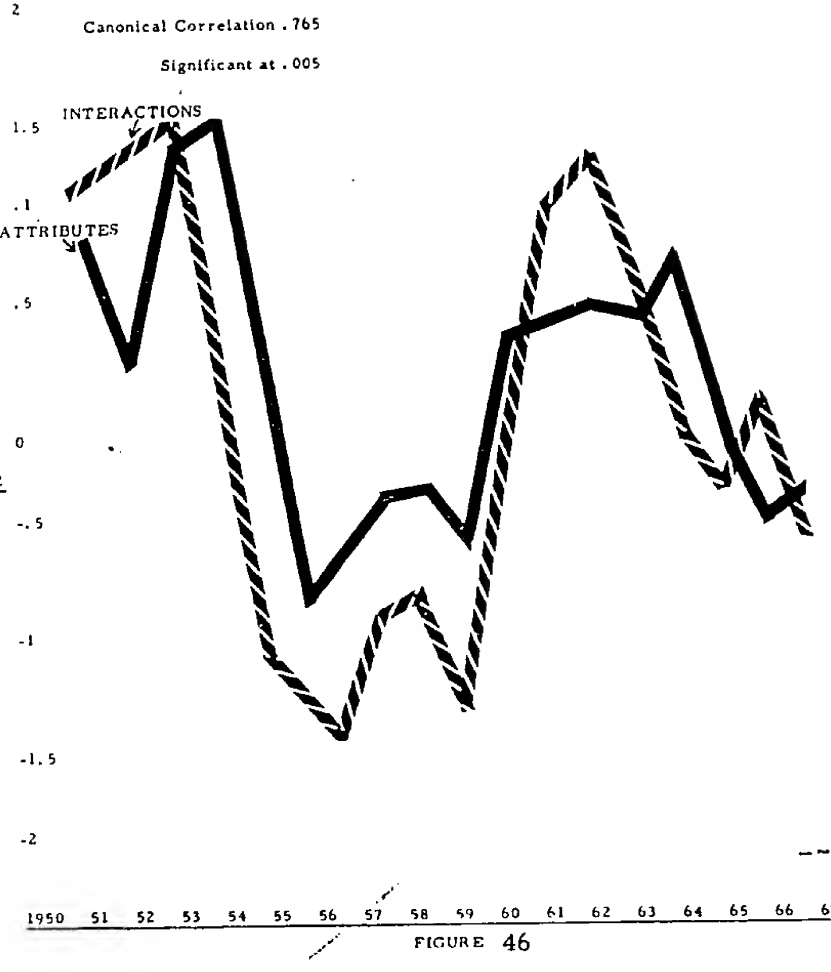
SINO-SOVIET DIFFERENCES IN PERCEPTION OF U.S. ACTIVENESS AND SINO-SOVIET DIFFERENCES IN CONVENTIONAL MILITARY STRENGTH RELATE TO CHANGING SOVIET MILITARY AND CULTURAL RESPONSES VIS A VIS CHINA



Canonical Correlation:
Differences between the Soviet Union and China on 23 Attributes and 45 Interactions.

Factor Loadings

High-Loading Attributes		High Loading Interactions	
Perception of U.S. Activeness	.78	Soviet Forces at the Border	.61
Armed Forces	-.71	Chinese Students in the Soviet Union	-.67
Fighters	-.67	Soviet Imports from China	-.59

FIGURE 46

in Soviet and Chinese perceptions of the West has been suggested as a possible contributor to the Sino-Soviet dispute. Note, however, that although this perceptual gap is not related to the dominant factor of cooperation and hostility, it does relate to a decline in Soviet cooperative responses toward China.

(U) Variate 3 of the attribute study is characterized by a gap in Soviet and Chinese perceptions of the US as negative and threatening. Variate 3 in the interaction study is indexed by China's perception of the Soviet Union as strong. The canonical correlation between the two is .716. The scores on variate 3 are plotted in Figure 47.

(U) The pattern is called Difference in Sino-Soviet Threat Perception of the US is Related Inversely to Chinese Perceptions of Soviet Strength. That is, as the gap between Soviet and Chinese perception of the US as a threat increased, the Chinese perception of the Soviets as strong decreased.

2. Canonical Analysis of Differences in 16 Attributes and 45 Interactions

(U) In this section, we discuss a canonical rotation of the factor scores of the three factors derived in the 16 variable difference analysis and the factor scores of the five factors derived from the analysis of the 45 interactions. The canonically rotated factor loading matrix for the 16 attributes is shown in Table 42 and the canonically rotated factor loading matrix for the 45 interactions is presented in Table 43.

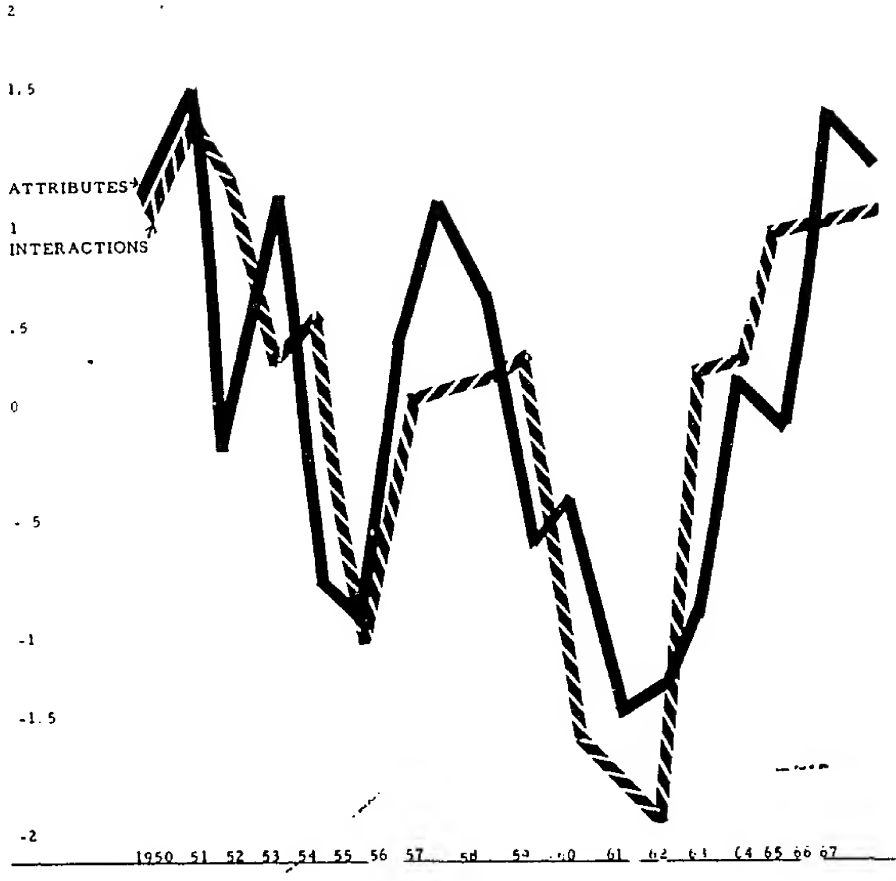
(U) Variate 1 for the attributes is characterized by the Sino-Soviet gap in industrialization and nuclear capability--the same as in the 23 variable study. Variate 1 for the interactions is characterized by cooperation and conflict between the Soviets and Chinese-- the factor which always appears as the first factor for the 45 interactions. The canonical correlation between the two is .983. The scores on variate 1 are plotted in Figure 48.

(U) The pattern here is almost identical to variate 1 between the 23 variables and 45 interactions. The gap between the Soviets and Chinese in industrialization and nuclear capability predict to increasing mutual threat perception and hostility. In fact, the predictive value of the 16 attribute study is a bit better than the 23 attribute study. The canonical correlation for the 23-45 was .979. The 16 attributes apparently form a slightly more stable pattern due to the absence of the perception variables.

DIFFERENCE IN SINO-SOVIET THREAT PERCEPTION OF THE UNITED STATES RELATES INVERSELY TO CHINESE PERCEPTIONS OF SOVIET STRENGTH

Canonical Correlation .716

Significant at .02



Factor Scores on Canonical Variate 3

Canonical Correlation:
Differences between the Soviet Union and China on 23 Attributes and 45 Interactions.

Factor Loadings

High-Loading Attributes		High-Loading Interactions	
Threat Perception of U.S.	.80	Chinese Perception of the Soviet Union as Strong	-.69
Negative Perception of the U.S.	.80		

FIGURE 47

TABLE 42

CANONICAL ROTATION OF 45 INTERACTION AND 16 ATTRIBUTE VARIABLES: Attribute Matrix

ROTATED FACTOR MATRIX

FACTOR NUMBER	1	2	3
SUM SQUARES OVER VARIABLES	10.803	1.218	1.809
PERCENT OF TOTAL VARIANCE	67.521	7.613	11.307

VARIABLE NO.	NAME	COMMUNALITY 3 FACTORS			
1	GNP	0.983	-0.991	+0.020	-0.027
2	EXPORTS	0.990	-0.991	+0.058	-0.067
3	IMPORTS	0.992	-0.958	+0.169	-0.249
4	IMPT/GNP	0.913	-0.615	+0.363	-0.634
5	EXPT/GNP	0.635	-0.699	+0.237	-0.300
6	ENERGY	0.922	-0.948	-0.117	0.101
7	AGRICPRO	0.751	-0.365	+0.730	0.355
8	STEEL PR	0.981	-0.988	-0.024	-0.066
9	POPULTN	0.950	0.972	+0.033	0.070
10	DEFNCBUD	0.698	+0.833	-0.066	0.009
11	DEFC/GNP	0.756	0.837	-0.151	0.178
12	FIGHTERS	0.782	0.775	-0.222	-0.364
13	ARMFORCE	0.656	0.529	+0.669	-0.074
14	SUBMARIN	0.982	-0.984	+0.098	0.067
15	ICBMS	0.982	-0.857	-0.096	0.489
16	TREATIES	0.818	0.354	-0.037	0.831

CANONICAL ROTATION OF 45 INTERACTION AND 16 ATTRIBUTE VARIABLES : Interaction Matrix

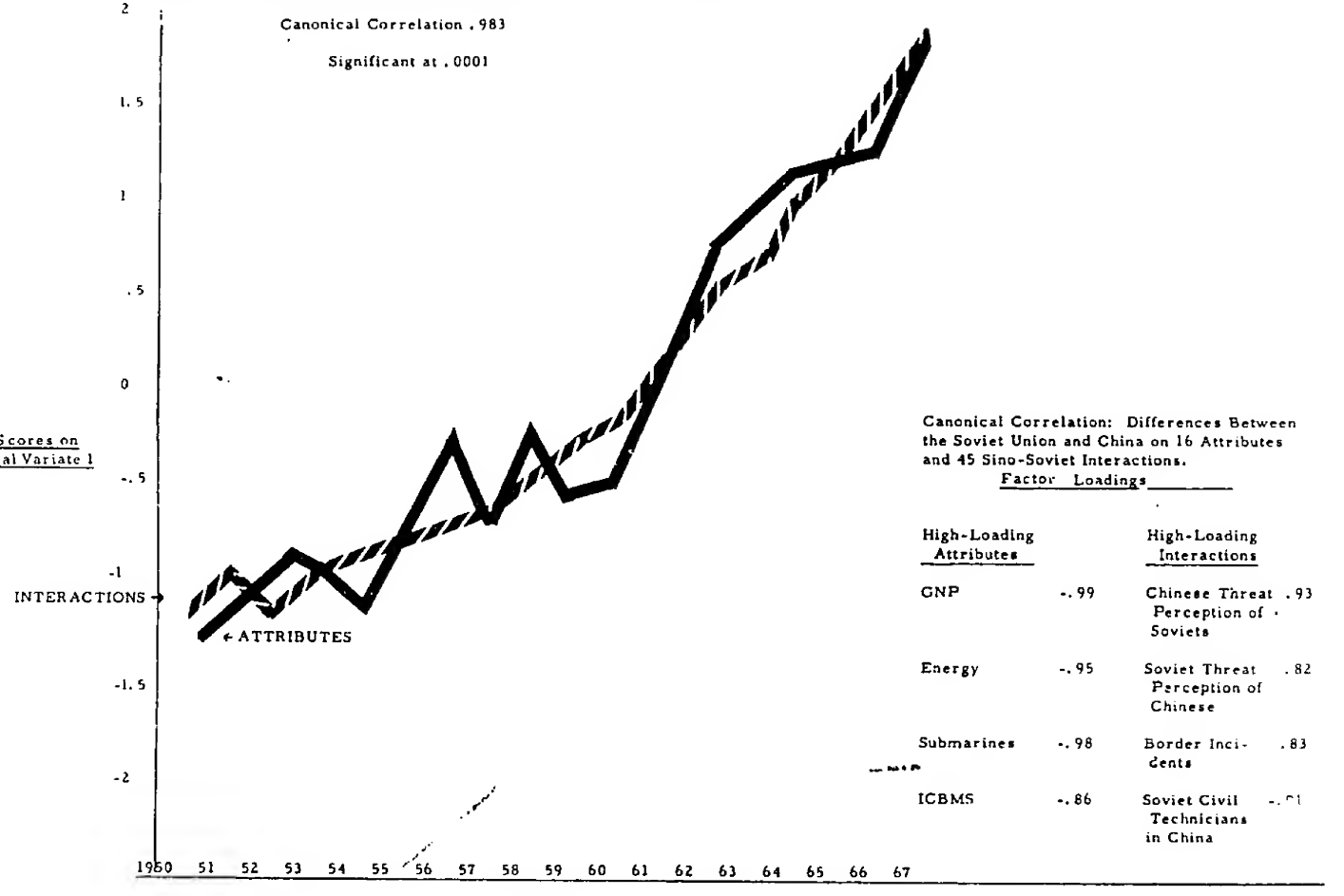
TABLE 43

ROTATED FACTOR MATRIX

FACTOR NUMBER	1	2	3
SUM SQUARES OVER VARIABLES	20.079	4.188	6.462
PERCENT OF TOTAL VARIANCE	44.620	9.307	14.361

VARIABLE NO.	NAME	COMMUNALITY 3 FACTORS			
1	SUECAID	0.554	-0.346	+0.640	-0.153
2	RSUECAID	0.554	-0.432	+0.604	0.055
3	SUCTCPR	0.892	-0.907	-0.251	0.079
4	CPRCTSU	0.886	-0.921	-0.137	-0.142
5	SUMILAID	0.835	-0.847	-0.234	0.250
6	CPRSTSU	0.691	-0.425	-0.461	-0.546
7	SSTREATY	0.424	-0.623	+0.115	-0.151
8	SSECONTR	0.369	-0.578	+0.177	0.056
9	SSS-ITR	0.411	-0.358	-0.485	-0.217
10	SSC-PTR	0.440	-0.584	+0.255	0.186
11	SSCULTR	0.605	-0.049	+0.113	-0.768
12	SSCO4MTR	0.240	-0.245	+0.415	0.086
13	SUCFVCPR	0.020	-0.061	-0.092	-0.088
14	CPRUFVSU	0.714	-0.173	+0.594	-0.575
15	SUCVCCPR	0.055	-0.169	+0.033	-0.159
16	CPRUVOSU	0.349	-0.319	+0.498	-0.006
17	SUBRCCPR	0.779	0.724	-0.191	0.467
18	CPRBRCSU	0.766	0.798	-0.100	0.346
19	SUCLOCPR	0.707	-0.438	-0.381	+0.608
20	CPRCLOSU	0.769	-0.722	-0.372	-0.329
21	SUEXPCPR	0.884	-0.773	-0.481	-0.234
22	SUIMPCPR	0.679	-0.306	-0.419	-0.640
23	RSUEXCPR	0.976	-0.931	-0.272	0.189
24	RSUIMCPR	0.894	-0.863	-0.349	-0.165
25	RCPREXSU	0.875	-0.868	-0.249	-0.243
26	RCPRIMSU	0.946	-0.955	-0.047	0.179
27	SUPETCPR	0.747	-0.666	+0.222	-0.504
28	RSUPTCPR	0.687	0.672	+0.449	-0.693
29	SUFURCOR	0.657	0.322	+0.338	0.662
30	CPRFORHR	0.862	0.923	+0.098	0.006
31	BURINCID	0.784	0.832	+0.179	-0.243
32	SU ST CC	0.544	-0.685	-0.185	0.200
33	SU WK CC	0.676	0.799	+0.053	0.187
34	SU AC CC	0.772	0.631	-0.104	0.602
35	SU PA CC	0.469	0.612	+0.124	-0.282
36	SU PO CC	0.804	+0.782	+0.187	-0.396
37	SU NG CC	0.869	0.834	+0.125	0.398
38	SU TP CC	0.907	0.817	+0.064	0.486
39	CC ST SU	0.712	-0.388	+0.284	-0.694
40	CC WK SU	0.868	+0.847	-0.228	0.313
41	CC AC SU	0.860	0.724	-0.489	-0.312
42	CC PA SU	0.499	0.468	-0.057	0.526
43	CC PO SU	0.814	+0.846	+0.151	-0.275
44	CC NG SU	0.943	0.895	-0.019	0.376
45	CC TP SU	0.946	0.931	-0.046	0.276

SINO-SOVIET INDUSTRIALIZATION AND STRATEGIC GAPS PREDICT TO INCREASING MUTUAL THREAT PERCEPTION AND BORDER HOSTILITY AND DECREASING ECONOMIC AND POLITICAL COOPERATIVE BEHAVIOR.



Canonical Correlation: Differences Between the Soviet Union and China on 16 Attributes and 45 Sino-Soviet Interactions.

Factor Loadings

High-Loading Attributes		High-Loading Interactions	
GNP	-.99	Chinese Threat Perception of Soviets	.93
Energy	-.95	Soviet Threat Perception of Chinese	.82
Submarines	-.98	Border Incidents	.83
ICBMS	-.86	Soviet Civil Technicians in China	-.81

FIGURE 48

(U) Variate 2 for the attributes describes the pattern of the Sino-Soviet gap in agricultural production and armed forces. Variate 2 for the interactions is indexed by "Soviet economic aid to China and by Chinese official visits to the Soviet Union." The canonical correlation between the two is .849. The scores for variate 2 are plotted in Figure 49. The changing Sino-Soviet armed forces gap is positively related to the pattern of Soviet economic aid to China and negatively related to the pattern of Chinese official visits to the Soviet Union. The difference in Soviet and Chinese agricultural production relates to the same interactions but in opposite directions. A negative slope in the plot indicates that the Sino-Soviet gap in armed forces was closing, the agricultural gap was widening, Chinese official visits to the Soviet Union were decreasing, and, prior to 1962--when Soviet economic aid to China ended--Soviet economic aid was increasing.

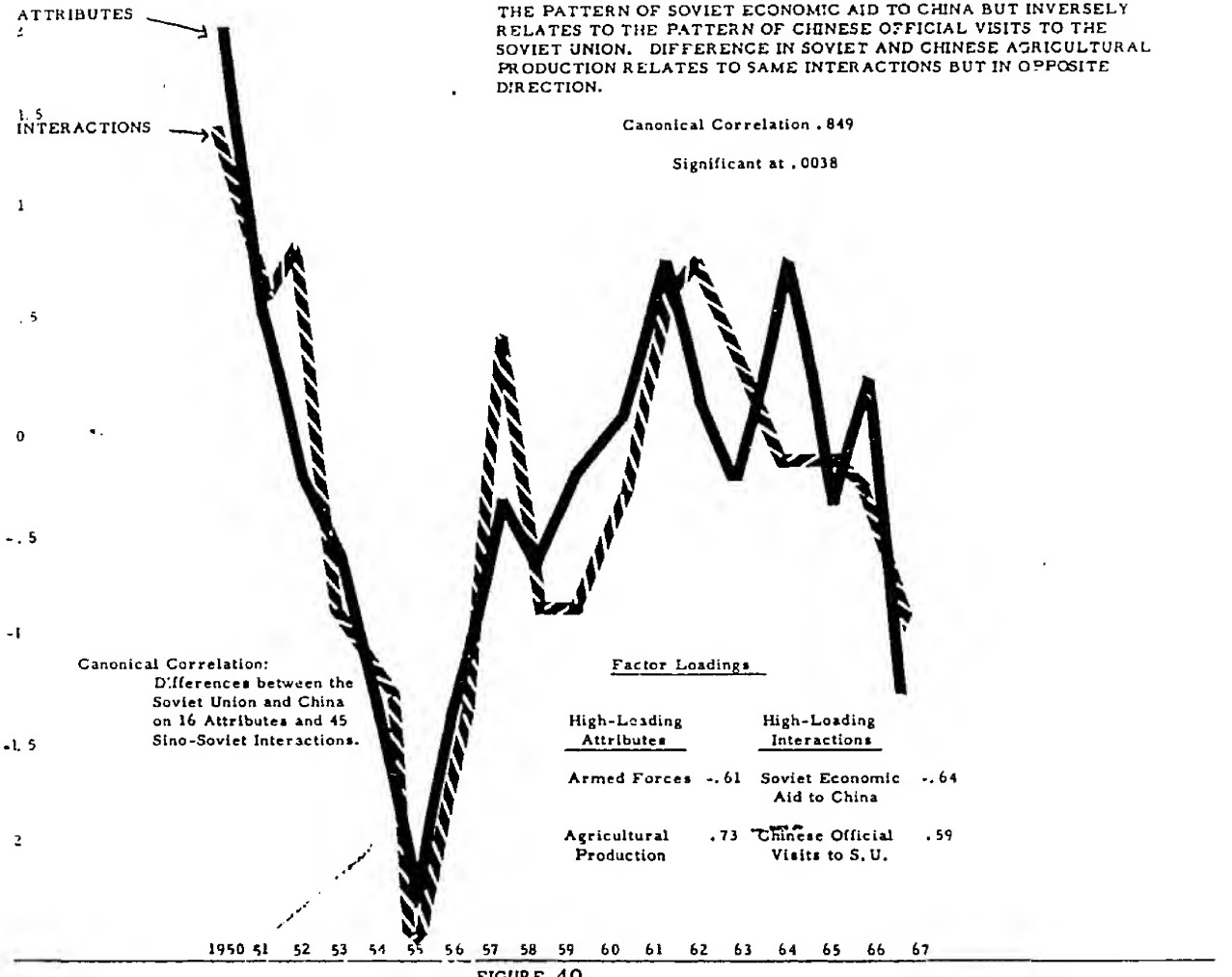
(U) In the earlier canonical analysis of the differences on 23 national attributes, the perception patterns on the second and third variate dominated the factors and predicted to the interactions. Soviet initiatives were predicted on the second variate and Chinese perceptions were predicted on the third variate. In this canonical analysis without the perception variables among the attributes, we have other attributes emerging and predicting to Sino-Soviet interactions. As described in the second variate, the armed forces gap and the agricultural production gap predicted to Soviet economic and Chinese official visits, none of which appeared in the 23 study. In the third variate in the 16 analysis, the Sino-Soviet trade and treaty gap relates to Soviet initiatives. The canonical correlation on the third variate was .578 but was not considered significant enough to present here.

(U) It is interesting to note that higher canonical correlations appeared between the 16 attributes and 45 interactions. In terms of Sino-Soviet relations, the differences between the Soviets and Chinese on attributes and perceptions do not relate to Sino-Soviet interactions as well as their differences on the physical attributes alone. In other words, the addition of perceptual variables slightly reduces the predictive power of the canonical regression.

3. CANONICAL ANALYSIS OF DIFFERENCES IN 9 ECONOMIC ATTRIBUTES AND 45 INTERACTIONS

(U) A canonical rotation was performed on the factor scores of the three factors derived in the 9 variable difference analysis and the factor scores of the five factors derived from the analysis of the 45 interactions. The purpose here is to determine how well the differences between the Soviets and Chinese on just the economic attributes relate to Sino-Soviet interactions.

CHANGING SINO-SOVIET ARMED FORCES GAP DIRECTLY RELATES TO THE PATTERN OF SOVIET ECONOMIC AID TO CHINA BUT INVERSELY RELATES TO THE PATTERN OF CHINESE OFFICIAL VISITS TO THE SOVIET UNION. DIFFERENCE IN SOVIET AND CHINESE AGRICULTURAL PRODUCTION RELATES TO SAME INTERACTIONS BUT IN OPPOSITE DIRECTION.



Canonical Correlation .849

Significant at .0038

Canonical Correlation: Differences between the Soviet Union and China on 16 Attributes and 45 Sino-Soviet Interactions.

Factor Loadings

High-Leading Attributes		High-Loading Interactions	
Armed Forces	-.61	Soviet Economic Aid to China	-.64
Agricultural Production	.73	Chinese Official Visits to S.U.	.59

FIGURE 49

(U) The canonically rotated factor loading matrix for the 9 attributes is shown in Table 44 and the canonically rotated factor loading matrix for the 45 interactions is presented in Table 45.

(U) Only the first variate related at a significant enough level to be presented. But this first variate related at a higher canonical correlation, .989, than any of the others achieved. Variate 1 for the attributes is characterized by the Sino-Soviet gap in industrialization. Variate 1 for the interactions is indexed by measures of Soviet and Chinese cooperation and conflict. The scores on Variate 1 are plotted in Figure 50.

(U) The pattern shows that the large and growing gap between the Soviets and Chinese in industrialization predicts very well to the growing Sino-Soviet dispute. At almost any point from 1950 to 1967, the difference between the Soviets and Chinese on their economic attributes relates quite closely to the amount of hostility the Soviets and Chinese are experiencing in that year.

(U) Over the whole time period, the differences between the Soviets and Chinese on the economic attribute factor scores predict over 97 percent of the variation in the 45 Sino-Soviet interaction factor scores.

4. Canonical Analysis of Differences in 6 Military Attributes and 45 Interactions

(U) A canonical rotation was performed on the factor scores of the three factors derived in the 6 variable difference analysis and the factor scores of the five factors derived from the analysis of the 45 interactions.

(U) The canonically rotated factor loading matrix for the 6 attributes is shown in Table 46 and the canonically rotated factor loading matrix for the 45 interactions is presented in Table 47. The canonical correlations for all three variates are significantly high.

(U) Variate 1 on the military attributes is characterized by the Sino-Soviet strategic gap. Variate 1 on the interactions is characterized by the usual Sino-Soviet cooperation and conflict pattern. The canonical correlation between the two is .976. The scores in variate 1 are plotted in Figure 51.

(U) The canonical regression shows that the Sino-Soviet gap in nuclear capability predicts quite well to the decrease in Soviet and Chinese cooperation and the increase in their hostility.

TABLE 44

CANONICAL ROTATION OF 45 INTERACTION AND 9 ATTRIBUTE VARIABLES: Attribute Matrix

ROTATED FACTOR MATRIX

	FACTOR NUMBER	1	2	3
SUM SQUARES OVER VARIABLES		6.630	1.141	0.877
PERCENT OF TOTAL VARIANCE		73.671	12.682	9.739

VARIABLE NO.	NAME	COMMUNALITY 3 FACTORS			
1	GNP	0.993	0.991	-0.092	0.058
2	EXPORTS	0.988	0.978	-0.177	-0.003
3	IMPORTS	0.993	0.959	-0.243	-0.123
4	IMPT/GNP	0.879	0.619	-0.535	-0.458
5	EXPT/GNP	0.848	0.633	-0.620	-0.251
6	ENERGY	0.974	0.966	0.143	0.144
7	AGRICPRO	0.992	0.284	-0.590	0.750
8	STEEL PR	0.995	0.996	-0.054	0.024
9	POPULTN	0.986	0.992	0.004	-0.038

CANONICAL ROTATION OF 45 INTERACTION AND 9 ATTRIBUTE VARIABLES: Interaction Matrix

ROTATED FACTOR MATRIX

TABLE 45

	FACTOR NUMBER	1	2	3
SUM SQUARES OVER VARIABLES		18.128	5.403	6.216
PERCENT OF TOTAL VARIANCE		40.284	12.006	13.813

VARIABLE NO.	NAME	COMMUNALITY 3 FACTORS			
1	SUECAID	0.428	-0.320	0.424	-0.382
2	RSUECAID	0.388	-0.428	0.414	-0.181
3	SUCTCPR	0.912	+0.873	0.386	0.006
4	CPRCTSU	0.874	+0.876	0.254	-0.208
5	SUMILAID	0.885	+0.827	0.403	0.199
6	CPRSTSU	0.730	+0.286	0.647	-0.479
7	SSTREATY	0.338	+0.569	0.104	-0.059
8	SSECONTR	0.365	+0.590	-0.126	0.026
9	SSS-TTR	0.514	-0.261	0.640	-0.190
10	SSC-PTR	0.414	+0.574	-0.005	0.290
11	SSCULTR	0.361	+0.067	0.060	-0.594
12	SSCOMMTR	0.172	-0.255	-0.259	0.200
13	SUCFVCPR	0.186	+0.026	0.413	0.125
14	CPROFVSU	0.450	-0.135	-0.492	-0.436
15	SUCVDCPR	0.106	-0.080	0.307	0.070
16	CPROVDSU	0.284	-0.339	-0.406	0.063
17	SUBRCCPR	0.693	+0.675	0.103	0.476
18	CPRBRCSU	0.717	+0.756	0.015	0.382
19	SUCLDCPR	0.701	-0.299	0.570	-0.535
20	CPRCLDSU	0.805	-0.615	0.577	-0.308
21	SUEXPCPR	0.905	-0.693	0.570	-0.317
22	SUIMPCPR	0.689	-0.164	0.586	-0.565
23	RSUEXCPR	0.961	+0.928	0.314	0.040
24	RSUIMCPR	0.918	+0.790	0.497	-0.215
25	RCPREXSU	0.870	-0.805	0.353	-0.312
26	RCPRIMSU	0.950	+0.970	0.086	0.044
27	SUPETCPR	0.643	-0.614	-0.122	-0.501
28	RSUPTCPR	0.605	+0.109	-0.467	-0.612
29	SUFORBUR	0.622	+0.177	-0.533	0.554
30	CPRFORBR	0.859	+0.904	-0.180	0.099
31	BORINCID	0.816	+0.819	-0.331	-0.188
32	SU ST CC	0.531	-0.699	0.198	0.060
33	SU WK CC	0.671	+0.765	-0.140	0.258
34	SU AC CC	0.580	-0.539	-0.069	0.533
35	SU PA CC	0.483	0.620	-0.230	-0.215
36	SU PO CC	0.704	-0.735	-0.064	-0.400
37	SU NG CC	0.847	+0.769	-0.205	0.462
38	SU TP CC	0.859	+0.745	-0.151	0.530
39	CC ST SU	0.776	-0.350	-0.347	-0.730
40	CC WK SU	0.834	+0.824	0.156	0.362
41	CC AC SU	0.893	+0.798	0.443	-0.245
42	CC PA SU	0.724	+0.454	0.235	0.680
43	CC PO SU	0.855	-0.833	-0.141	-0.375
44	CC NG SU	0.915	+0.847	-0.090	0.443
45	CC TP SU	0.915	+0.893	-0.041	0.341

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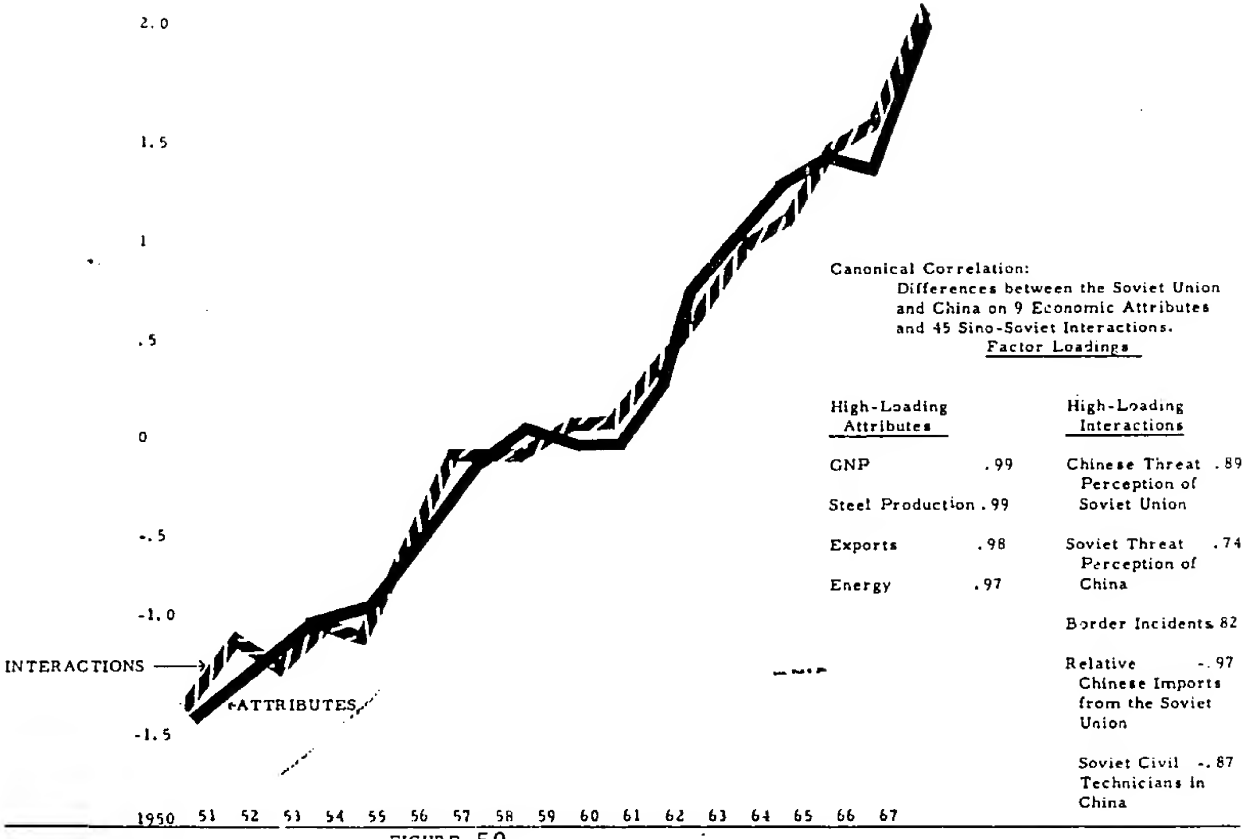
SINO-SOVIET INDUSTRIALIZATION GAP PREDICTS TO INCREASING MUTUAL THREAT PERCEPTION AND BORDER HOSTILITY AND DECREASING SINO-SOVIET ECONOMIC AND POLITICAL COOPERATIVE BEHAVIOR.

Canonical Correlation .989

Significant at .0001



Canonical Correlation:
Differences between the Soviet Union and China on 9 Economic Attributes and 45 Sino-Soviet Interactions.

Factor Loadings

High-Loading Attributes		High-Loading Interactions	
GNP	.99	Chinese Threat Perception of Soviet Union	.89
Steel Production	.99		
Exports	.98	Soviet Threat Perception of China	.74
Energy	.97		
		Border Incidents	.82
		Relative Chinese Imports from the Soviet Union	-.97
		Soviet Civil Technicians in China	-.87

FIGURE 50

TABLE 46

CANONICAL ROTATION OF 45 INTERACTION AND 6 ATTRIBUTE VARIABLES; Attribute Matrix

ROTATED FACTOR MATRIX

	FACTOR NUMBER	1	2	3
SUM SQUARES OVER VARIABLES		4.103	0.676	0.787
PERCENT OF TOTAL VARIANCE		68.382	11.261	13.117

VARIABLE NO.	NAME	COMMUNALITY 3 FACTORS			
1	DEFNCBUD	0.801	0.820	-0.356	0.052
2	DEFC/GNP	0.996	-0.811	-0.538	0.221
3	FIGHTERS	0.909	-0.834	+0.462	0.007
4	ARMFORCE	0.997	-0.522	+0.025	0.851
5	SUBMARIN	0.983	0.990	-0.036	-0.042
6	ICBMS	0.880	0.909	-0.210	0.099

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CANONICAL ROTATION OF 45 INTERACTION AND 6 ATTRIBUTE VARIABLES : Interaction Matrix

ROTATED FACTOR MATRIX

TABLE 47

FACTOR NUMBER	1	2	3
SUM SQUARES OVER VARIABLES	21.033	6.272	3.651
PERCENT OF TOTAL VARIANCE	46.740	13.937	8.114

VARIABLE NO.	NAME	COMMUNALITY 3 FACTORS			
1	SUECAID	0.738	-0.345	+0.156	0.772
2	RSUECAID	0.745	-0.412	-0.035	0.758
3	SUCTCPR	0.847	-0.902	-0.009	0.183
4	CPRCTSU	0.891	-0.934	+0.113	0.069
5	SUMILAID	0.727	-0.828	-0.117	0.163
6	CPRSTSU	0.856	-0.492	+0.771	0.141
7	SSTREATY	0.506	+0.638	+0.239	-0.205
8	SSECONTR	0.335	-0.561	-0.127	-0.041
9	SSS-TTR	0.425	-0.393	+0.466	0.230
10	SSD-PTR	0.417	+0.568	-0.079	-0.298
11	SSCULTR	0.783	-0.133	+0.784	-0.388
12	SSCOMMTR	0.204	-0.233	-0.076	-0.379
13	SUDEVCPR	0.248	-0.093	+0.422	-0.247
14	CPRDEVSU	0.563	-0.223	+0.360	-0.619
15	SUDVCCPR	0.365	-0.204	+0.450	-0.348
16	CPDVDSU	0.263	-0.309	-0.112	-0.393
17	SUCRCCPR	0.719	+0.766	-0.265	0.247
18	CPRCRCSU	0.738	+0.826	-0.185	0.138
19	SUCLDCPR	0.870	-0.512	+0.778	0.051
20	CPRCLDSU	0.847	+0.766	+0.497	0.115
21	SUEXPCPR	0.862	0.800	+0.333	0.334
22	SUIMPCPR	0.821	+0.384	+0.818	0.074
23	RSUEXCPR	0.960	-0.908	-0.185	0.319
24	RSUIMCPR	0.888	-0.885	+0.259	0.194
25	RCPPEXSU	0.875	-0.894	+0.239	0.139
26	RCPSIMSU	0.956	-0.928	-0.267	0.154
27	SUPETCPR	0.697	+0.716	+0.277	-0.328
28	RSUPTCPR	0.393	+0.011	+0.412	-0.472
29	SUFURROR	0.894	+0.400	-0.857	-0.006
30	CRFRORUR	0.859	+0.919	+0.044	-0.110
31	RURINCID	0.699	+0.812	+0.144	-0.136
32	SU ST CC	0.554	-0.666	-0.261	0.207
33	SU WK CC	0.678	+0.820	-0.069	0.029
34	SU AC CC	0.843	+0.694	-0.528	0.289
35	SU PA CC	0.421	+0.592	+0.256	-0.069
36	SU PO CC	0.795	-0.821	+0.214	-0.275
37	SU NG CC	0.848	+0.873	-0.293	-0.024
38	SU TP CC	0.877	+0.863	-0.361	0.045
39	CC ST SU	0.377	-0.443	+0.344	-0.250
40	CC WK SU	0.816	+0.872	-0.069	0.227
41	CC AC SU	0.878	+0.683	+0.569	0.297
42	CC PA SU	0.288	+0.499	-0.173	-0.093
43	CC PO SU	0.755	-0.863	+0.008	-0.099
44	CC NG SU	0.905	+0.926	-0.210	0.053
45	CC TP SU	0.929	+0.953	-0.123	0.071

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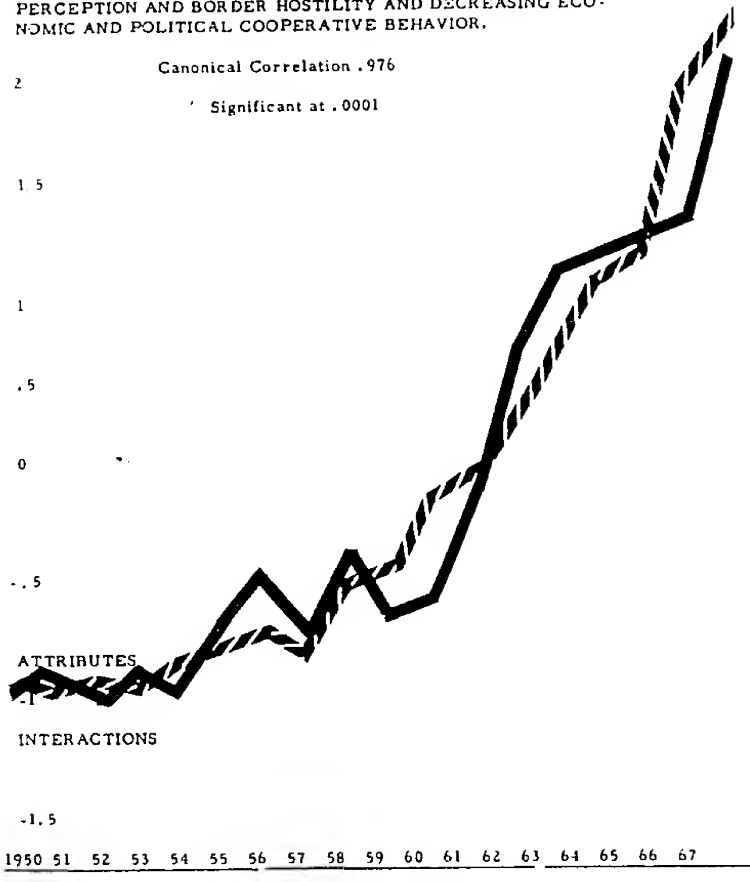
SINO-SOVIET STRATEGIC GAP PREDICTS TO INCREASING MUTUAL THREAT PERCEPTION AND BORDER HOSTILITY AND DECREASING ECONOMIC AND POLITICAL COOPERATIVE BEHAVIOR.



Factor Scores on Canonical Variate 1

Canonical Correlation:
Differences between the Soviet Union and China on 6 Military Attributes and 45 Sino-Soviet Interactions.

Factor Loadings

High-Loading Attributes		High-Loading Interactions	
Submarines	.99	Chinese Threat Perception of Soviets	.95
ICBM's	.91	Soviet Threat Perception of China	.86
		Border Incidents	.81
		Relative Chinese Imports from the Soviet Union	-.93

FIGURE 51

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(U) Variate 2 on the military attributes is characterized by the gap in Soviet and Chinese percentage of GNP allocated for defense. Variate 2 on the interactions is indexed by measures of Soviet initiatives or responses to China. The canonical correlation between the two is .862. The scores on Variate 2 are plotted in Figure 52. The plot shows that from 1953 on, the changing Sino-Soviet defense allocation gap is highly related to the changing Soviet military and cultural responses to China.

(U) Variate 3 on the military attributes is characterized by the Sino-Soviet gap in armed forces. Variate 3 on the interactions is characterized by "Soviet economic aid to China" and "Chinese official visits to the Soviet Union." The canonical correlation between the two is .808. The scores on variate 3 are plotted in Figure 53. The gap in Sino-Soviet armed forces relates quite highly to the economic aid extended to China by the Soviet Union. Both patterns are quite erratic. It should be noted again that Soviet aid to China ceased in 1962.

C. SUMMARY OF FINDINGS FROM THE CANONICAL CORRELATION AND REGRESSION ANALYSIS

(U) The major findings of the canonical correlation and regression analyses are summarized as follows:

1. The differences between the Soviets and Chinese on their national attributes from 1950 to 1967 are the best predictors of Sino-Soviet interaction. The highest canonical correlations were derived when only the differences on the physical attributes were used as predictor variables. The inclusion of perception variables as predictor variables increased in fluctuation in the patterns and resulted in reducing the size of the correlations.

2. Over the time period 1950-1967, the differences between the Soviets and Chinese on the economic attribute factor scores predicted over 97 percent of the variation in the 45 Sino-Soviet interaction scores. The differences on the economic attributes were, thus, the best predictor variables to the pattern of Sino-Soviet cooperation and conflict. This is not an economic interpretation of the Sino-Soviet dispute but rather an observation that as the gap between Soviet and Chinese industrial capability increased, the hostility between them also increased. It would seem that the Chinese were not only aware that they were having serious industrialization problems, but that also the sudden withdrawal of Soviet aid and technicians in 1960 further alienated the Chinese from the Soviets. The Chinese perceived the Soviets as a revisionist, status quo power, more concerned with establishing a détente with the West than in helping the development of a fellow Communist country.

CHANGING SINO-SOVIET DEFENSE ALLOCATION GAP RELATES TO CHANGING SOVIET MILITARY AND CULTURAL RESPONSES VIS A VIS CHINA

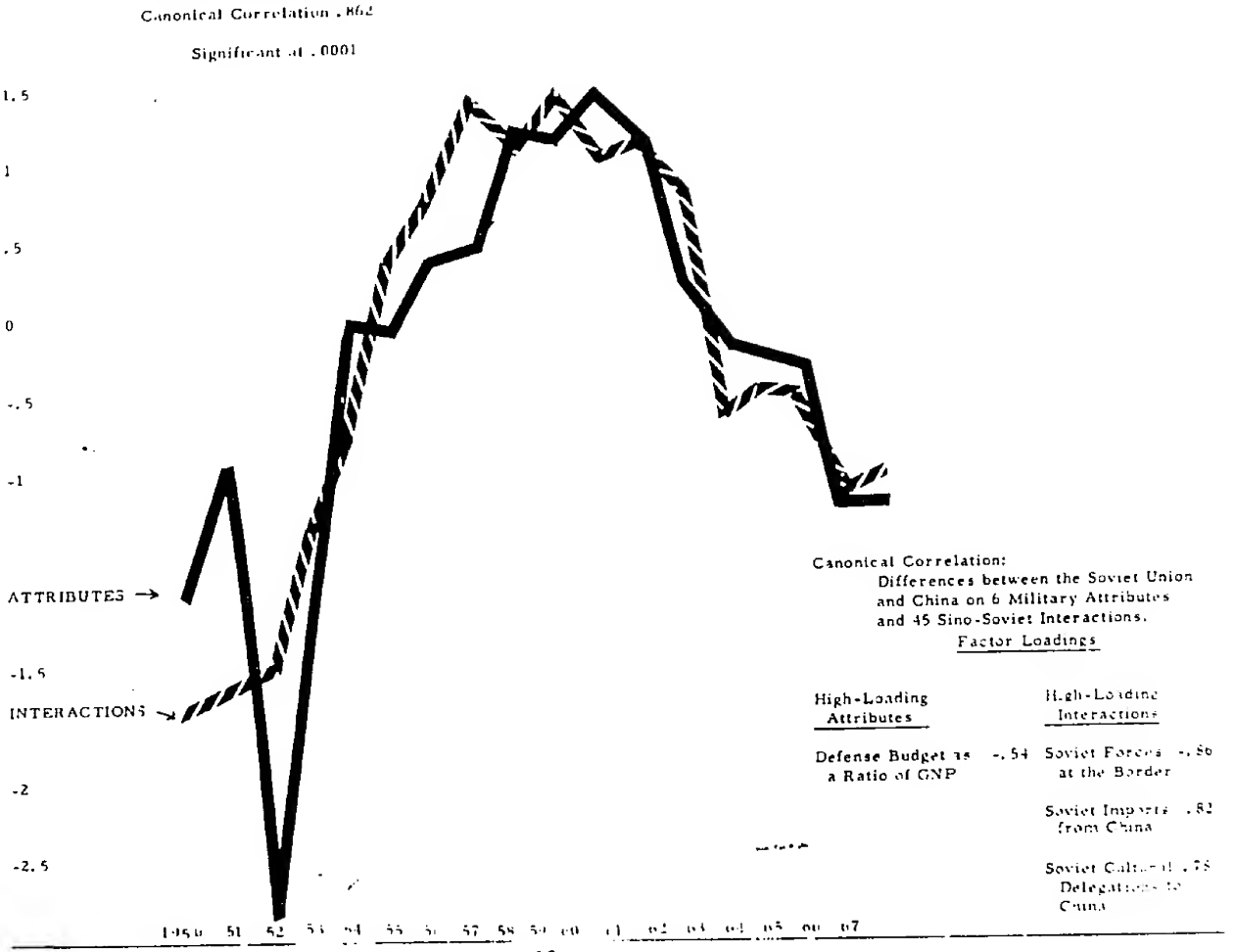

FIGURE 52

THE CHANGING SINO-SOVIET ARMED FORCES GAP RELATES TO THE PATTERN OF SOVIET ECONOMIC ASSISTANCE TO CHINA AND CHINESE OFFICIAL VISITS TO THE SOVIET UNION.

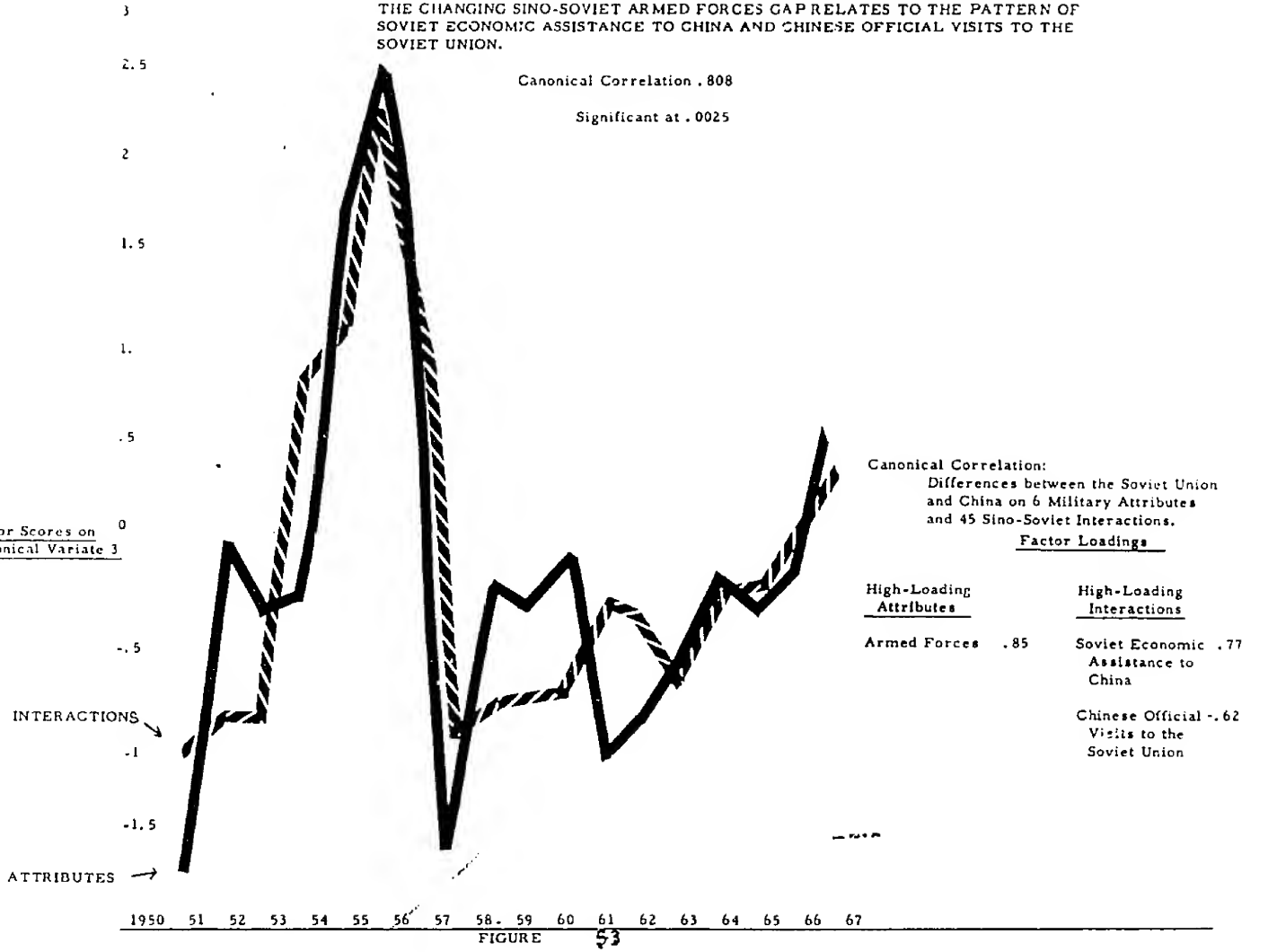

FIGURE 53

3. The strongest factor in the interaction analysis and one which appeared in every canonical regression is a pattern of increasing mutual threat perception and border hostility and decreasing economic and political cooperative behavior. This pattern best describes the Sino-Soviet dispute. It is made up of those interactions which indicate a steady trend of decreasing cooperation and increasing hostility. We found that the first factor of each subset of national attributes predicted very highly to this interaction factor with the economic subset--as described above--predicting the best.

4. The difference between the Soviets and the Chinese in their perceptions of the United States was found to be related to certain patterns of Sino-Soviet interactions. A difference in their perception of the US on the active dimension related to a changing pattern of Soviet responses to China. As the gap in their perceptions of the US on the dimension increased, Soviet cooperative behavior toward China decreased and Soviet hostile acts increased.

   The differences in the perception of the US as negative and threatening were also found to relate to China's perception of the Soviet Union as strong. Here for the first time we have a difference in perceptions of the US relating to China's perception of the Soviet Union.

   It has often been suggested that the increasing differences in Soviet and Chinese perceptions of the US were a major element in escalating the Sino-Soviet dispute. The results of this study, however, do not seem to support this contention. The Soviet and Chinese difference in perception of the US as active is related to Soviet behavior vis-à-vis China but it is not associated with the major pattern of Sino-Soviet cooperation and hostility. The same is true of their difference in perceptions of the US as indexed by the negative and threat variables. These two perceptions of the US which one would most expect to relate to their increasing mutual hostility instead relate only to the Chinese perception of the Soviet Union as being strong.

(U) An examination of the raw content data indicates that Sino-Soviet perceptions of the US were equally shared on all dimensions except the negative-positive dimension. Here the Chinese consistently viewed the US as more negative than did the Soviets. This, of course, could be due to an idiosyncrasy of the Chinese to verbalize in this manner, but it is interesting to note that if this is the case, it occurs only on this dimension. However, even though the Chinese consistently viewed the US as more negative than the Soviets, it appears to be unrelated to the increasing Sino-Soviet hostility.

5. The six military national attributes also predicted quite well to Soviet and Chinese interactions. The Sino-Soviet gap in nuclear capability is highly related to the decrease in Soviet and Chinese cooperation and the increase in their hostility. It is not as highly related as the "industrialization" gap but the canonical correlation is still .976.

   The gap between the Soviets and Chinese in percentage of GNP allocated for defense is also highly related to the changing Soviet military and cultural responses to China. This pattern describes a trend in which, as the defense allocation gap widens, the Soviets decrease cooperative behavior and increase military measures.

6. The canonical analysis has shown that the differences between the Soviets and Chinese on their national attributes from 1950 to 1967 predict quite highly to their interactions for the same period of time. This is an encouraging finding but one which still needs further study and expansion. Certainly the two most important aspects to investigate now are whether Sino-Soviet interactions in one year can be predicted from Sino-Soviet differences in attributes in the previous year. Furthermore, we need to disaggregate the predictions--which are in factor scores--to values on the original variables.

SECTION VII

COMPARISON OF FINDINGS

(U) This section compares the findings of this study to some of the findings from relevant prior research. Section II outlined some of the previous studies concerned either with the interaction of nations in general or with Sino-Soviet relations in particular. We compare our results with three of these studies.

1. The most important finding from this study confirms R. J. Rummel's social field theory[57] that the difference between nations on their attributes are related to their behavior towards each other. The results of the canonical analysis indicates that the Soviet and Chinese differences on national attributes predict quite highly over time to their interactions. Our research supports Rummel's conception of nation differences as social distances which act like forces on behavior, affecting both the nature and magnitude of behavior. This is an important finding, but one which, of course, still needs additional confirmation and expansion.

2. Holsti's study[58] of Soviet and Chinese perceptions of the US examined the hypothesis that Chinese and Soviet attitudes toward the United States will tend to be similar in periods of high interbloc conflict, whereas during periods of decreasing tensions, attitudes toward American policy will diverge. He found that during three periods of high East-West tension (June 1950; April 1961; October 22-25, 1962; and February 1965) both Chinese and Soviet perceptions of American policy were overwhelmingly negative, strong and active. During the three selected periods of lower East-West tension (September 1959, October 26-31, 1962; and July-August 1963) differences between Chinese and Soviet perceptions were greater than in the high tension periods on all three dimensions.

---

[57]See R. J. Rummel, The DON Project: A Five Year Research Program, op. cit., "Indicators of Cross-National and International Patterns," op. cit.

[58]Ole Holsti, "External Conflict and Internal Consensus: The Sino-Soviet Case," The General Inquirer, op. cit.

It is somewhat difficult to compare the results of this study with Holsti's work because Holsti did his analysis on short selected time periods while this study aggregated data by year for the years 1950-1967. The results of this study showed that over the 18-year period the differences between Soviet and Chinese perceptions of the US fluctuated a great deal. Examination of the raw data by years shows that the years in which the difference was the least in the Soviet and Chinese perception of the US as active were 1952, 1965, 1963, and 1964; as strong, 1960, 1952, 1953, 1956, and as negative, 1951, 1965, 1967, and 1954. According to Holsti's hypothesis, these would be years marked by high East-West tension.

It is difficult to talk in terms of "East-West high tension years." Almost every year from 1950 to 1968 experienced an East-West incident. Are the high tension years those in which more than one incident occurred or in which the incident lasted a longer period of time?

However, Holsti's concern with Soviet and Chinese perceptions of the US was the result of his operationalization of the hypothesis that "a high level of intercoalition conflict tends to increase intracoalition unity and more relaxed relations between blocs tend to magnify differences within the alliance." Basing his operationalization on literature relating to cognitive balance, Holsti assumed that a comparison of Soviet and Chinese perceptions of the US would be an indication of the degree of unity or tension existing between themselves. The assumption is that there is always a strain toward balance; that is, if the Soviet and Chinese both view the US as negative or positive, there will be a positive relationship between them, but if they differ in their views of the US there will be a negative relationship between them. (See Section III for a more complete explanation.)

The results of our factor analysis of Soviet and Chinese attributes over the 18-year period showed that Soviet and Chinese perceptions of the United States were unrelated to their perceptions of each other. It does not appear that their perceptions of the US contributed to their mutual perceptions. In effect, our results disconfirm Holsti's basic hypothesis that out-group pressure (resulting from East-West conflict), tends to reduce in-group (Sino-Soviet) dissonance over a period of time.

3. As mentioned in Section II, Thomas Robinson examined Sino-Soviet relations, 1949-1964, in terms of Morgenthau's national interest and power formulations.[59] Robinson viewed the element of power as an important factor in Soviet-Chinese relations. In fact he stated that "the most singular change in Sino-Soviet relations has been a relative increase in Chinese power." Robinson (as is Morgenthau) was very unclear as to the meaning of the word "power." Two possible definitions could be derived from his discussion. The first implies that "power" is the degree of Chinese independence of the Soviet Union. The second equates power to nuclear and industrial capability. However it is defined, Robinson states that "although Soviet power...increased during the period (1950-1964) and in absolute terms is probably much greater than Chinese power, it is the relative increase (in Chinese power) that matters."

In order to examine and test Robinson's hypothesis, we included measures of both interpretations of "power." Variables measuring the nuclear and industrial capabilities of the Soviets and Chinese were included in the national attribute study, and variables measuring the relative dependence of the Chinese on the Soviets were included in the interaction study.

The results of our study showed that the differences between the Soviets and Chinese in industrial and nuclear capabilities increased over time in an ever-widening gap. The Chinese have not experienced a relative increase in capability vis-à-vis the Soviets. If power is therefore defined in these terms, our study does not support Robinson's contention.

Measures of Chinese trade dependency were used to measure Chinese dependence on the Soviet Union. Examination of the data shows that the earlier years were characterized by a relatively high percentage of Chinese trade with the Soviet Union. However, the trend over time is marked by an almost linear decrease in Chinese trade dependency to a minimal amount in 1967. If "power" is defined, therefore, in terms of independence, Robinsion is quite correct in stating that the Chinese have gained a relative increase in power vis-à-vis the Soviet Union.

[59] Thomas W. Robinson, "A National Interest Analysis of Sino-Soviet Relations," op. cit.

Robinson also states that "the relative growth of Chinese power is positively correlated with pursuit of existing Chinese national interests as well as with discovery of new interests." Robinson implies that the Chinese pursuit of national interests over time has been an important factor in Sino-Soviet relations, or in other words with their increasing hostility. He states that "one important reason why China has drawn away from the Soviet Union is because she has become increasingly independent of the Soviet Union."

In our factor analysis of the 45 Sino-Soviet interactions, the first factor is a pattern of decreasing Soviet and Chinese cooperative behavior and increasing Soviet and Chinese hostile behavior. It is interesting to note that the Chinese trade dependency variables load highly negative on the factor while the variables measuring hostility load highly positive. In other words, a decrease in Chinese dependency on the Soviet Union is related to an increase in Sino-Soviet hostility. Of course the question is unanswered whether the hostility caused the decrease in dependency or vice-versa. Nevertheless, Robinson's hypotheses concerning relative Chinese power and its relation to the conflict gets some support from this study.

Robinson also states that nuclear weapons are obviously a discordant issue between the Soviet Union and China. Geoffrey Hudson agrees that the issue of nuclear weapons is one of the most important contributions to the conflict between the Soviet Union and China.[60] Two measures of the nuclear capability of the Soviets and the Chinese were, therefore, included in this study.

In the canonical correlation of the differences between the Soviets and the Chinese on six military attributes with the 45 Sino-Soviet interactions it was found that the Sino-Soviet gap in nuclear capability predicts quite well to an increase in Soviet and Chinese hostile behavior. In other words, as the gap in nuclear capability between the Soviets and Chinese increased, Soviet and Chinese hostile behavior increased. This can be considered confirmation of Robinson's hypothesis concerning the role of nuclear weapons in the dispute.

[60] Geoffrey Hudson, "Paper Tigers and Nuclear Teeth," The China Quarterly, No. 39, July-September 1969, p. 64.

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13. ABSTRACT

This is Volume II of a five volume study which reports the research conducted under Project TRIAD, "The Sino-Soviet Conflict: Its Implications for United States Strategic Planning in the 1970's", (U).

This volume contains the results of a quantitative analysis of the Sino-Soviet relationship from 1950-1967. The study examines Soviet and Chinese national attributes across time, describes Sino-Soviet interactions over the same time period, and relates the differences in their attributes to their interactions. (U)

In the attribute analysis measures included economic, military, political, demographic and perception variables. The perception variables were derived from a content analysis of Soviet and Chinese statements about each other and about the United States. (U)

In the interaction analysis measures included aid, treaties, exchanges, trade and conflict. (U)

The research effort on this study provided a test of the ability of three basic conceptual theories in international relations to explain Sino-Soviet behavior. These were: behavior explains behavior, attributes explain behavior, and some combination of attributes and perceptions explain behavior. (U)

Two methods of analysis were used in the study: component factor analysis and canonical regression and correlation analysis. (U)

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Factor Analysis						
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